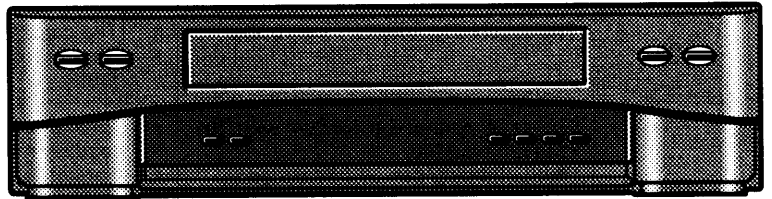




SERVICE MANUAL

Video Cassette Recorder

VHR-474E_(U.K.)
VHR-474G_(Germany)


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CIRCUIT DIAGRAMS (Refer to the separate volume)	

Please see other materials with Reference No. given in table below.

Materials	Model No.	Reference No.
Mechanism Manual	P90 Mechanism	WM-530599
	'94 Midi Mid-Mount Mechanism	MS531346

PRODUCT SAFETY NOTICE

The components designated by a symbol ($\triangle$) in this schematic diagram designates components whose value are of special significance to product safety. Should any component designated by a symbol need to be replaced, use only the part designated in the Parts List. Do not deviate from the resistance, wattage and voltage ratings shown.

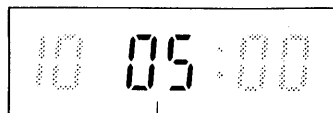
- NOTE: 1. Parts order must contain Model Number, Part Number and Description.
 2. Substitute parts may be supplied as the service parts.
 3. N.S.P.: Not available as service parts.

SELF-DIAGNOSIS DISPLAY

This unit displays the results of the self-diagnosis it carries out in two digits on the front panel indicator when problems occur. Although these digits will only roughly tell you what kind of problems have occurred, use them when servicing the unit.

1. Displaying the Self-Diagnosis Results

Press the STOP button for about 10 seconds continuously. Two digits (see below) showing the results of the self-diagnosis will be displayed for three seconds at the hours part of the timer. All other parts of the timer will go off. The time will automatically return after the three seconds.



Self-diagnosis digits

2. Self-Diagnosis Results

No.	Problem	Main Possible Cause	Mechanism Operations and State After Occurrence
01	The cylinder motor does not rotate.	- The cylinder motor is faulty. - The control of the cylinder motor is faulty. - The tape winds around the cylinder.	Shifts to the STOP mode.
02	The take-up reel does not rotate.	- The take-up reel is caught. - The belt is faulty. - The take-up torque has decreased.	Shifts to the STOP mode.
03	The capstan motor does not rotate.	- The capstan motor is faulty. - The control of the capstan motor is faulty.	Shifts to the STOP mode.
04	The tape cannot be loaded with the cassette inserted. (But unloading can be performed.)	- Error in the operations of the tape loading mechanism. - Foreign particles in the tape loading mechanism. - The tape end sensor is faulty. - The reel brake of the tape cassette has not been released.	Unloads, shifts to the INITIAL mode, and the power goes off.
05	Tape loading and unloading cannot be performed with the cassette inserted.	- The tape guide is caught. - The loading motor is faulty. - The control of the loading motor is faulty.	The power is forcibly turned off with the mechanism at its current position.
06	Front unloading cannot be performed when ejecting the cassette. (Front loading can be performed.)	- The cassette holder mechanism is faulty. - The front door is caught.	Front loads and shifts to the STOP or INITIAL mode. When the power switch is turned on before eject operations: Shifts to the STOP mode. When the power switch is turned off before eject operations: Shifts to the INITIAL mode and the power goes off.
07	Front loading and front unloading cannot be performed when ejecting the cassette.	- The tape cassette is caught in the cassette holder mechanism. - The gears of the front loading drive mechanism have not engaged properly.	The power is forcibly turned off with the mechanism at its current position.
08	The mechanism becomes 1 (BRAKE) while moving from 2 (STOP, FF/REW), 3(STILL), 4 (PLAY), and to 5 (IDLER).	The mechanism position switch contact is faulty.	The power is forcibly turned off with the mechanism at its current position.
09	The mechanism becomes 7 (INITIAL) while moving from 1 (BRAKE), 2 (STOP, FF/REW), 3(STILL), 4 (PLAY), and to 5 (IDLER).	The mechanism position switch contact is faulty.	Carries out tape take-up operations, shifts to the INITIAL mode, and the power goes off.

Note: For details of mechanism operations corresponding to the mechanism positions of the self-diagnosis numbers 08 and 09 above, refer to the separate volume on the mechanism manual. These manual reference numbers are shown in the cover.

1. DISASSEMBLY

1-1. REMOVAL OF CABINET, MECHANISM UNIT AND MAIN BOARD

REMOVING THE CABINET PARTS (Fig. 1.1.1)

1. Remove the cabinet and bottom cover by removing the four screws (A) and five screws (B).
2. Remove the front panel by removing the locks of the clamps (C) using a screwdriver, etc. and slightly rotating the bottom part in the direction of the arrow.

Note: Electrical adjustments for the this model can be performed with only the cabinet removed.

REMOVING THE MECHANISM MAIN UNIT (Fig. 1.1.2)

After removing the cabinet parts:

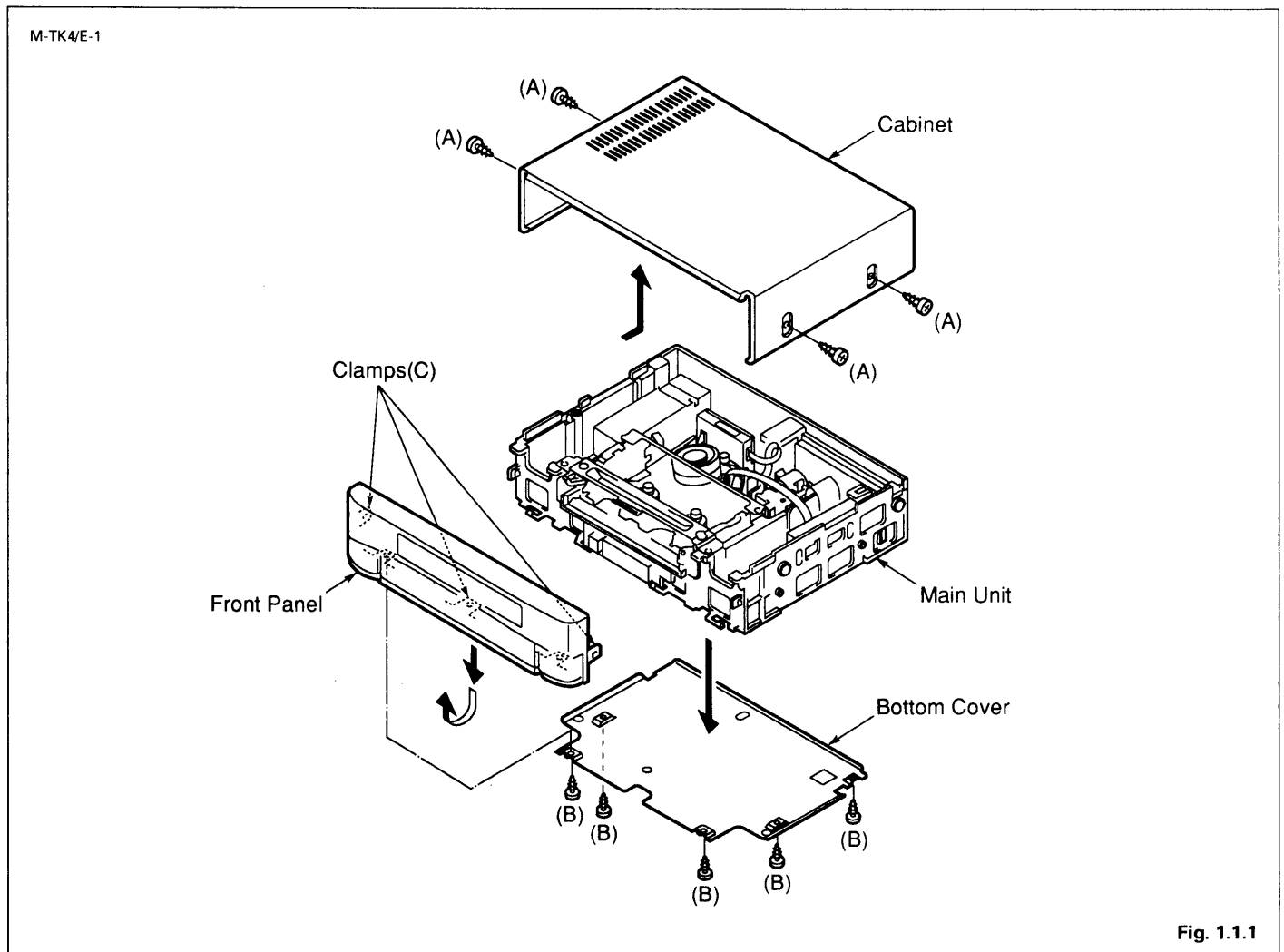
1. Remove the two screws (D), and then remove the bracket.
2. Remove the 22-wire flat cable from the MC-2 PWB, the 11-wire flat cable from the VP-1 PWB assembly and the 6-pin connector from the CP-1 PWB assembly respectively.
3. Remove the mechanism main unit by removing the two screws (E) and two screws (F).

Remove, as well, the two screws (G) at the cassette tray side while pressing the tray lock lever as shown in the enlarged view and pushing the cassette tray to the position where the two screw (G) appear.

REMOVING THE CP-1 PWB ASSEMBLY (Fig. 1.1.3)

After removing the cabinet parts and mechanism unit:

1. Pull out the TM-1 PWB assembly while pressing and spreading out the four clamps (H) as shown by the arrows.
2. Remove the two red screws (J). Next, remove the CP-1 PWB assembly by lifting it straight up while pressing and spreading out the two clamps (K) as shown by the arrows.



M-TK4/E-2

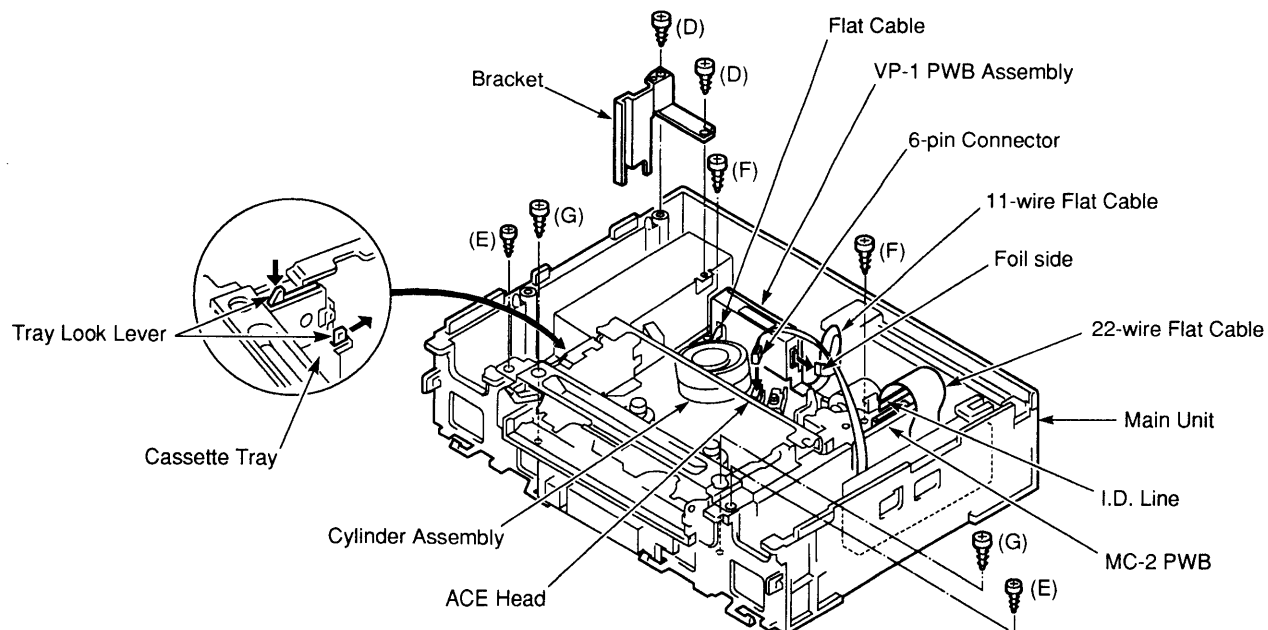


Fig. 1.1.2

M-TK4/E-3

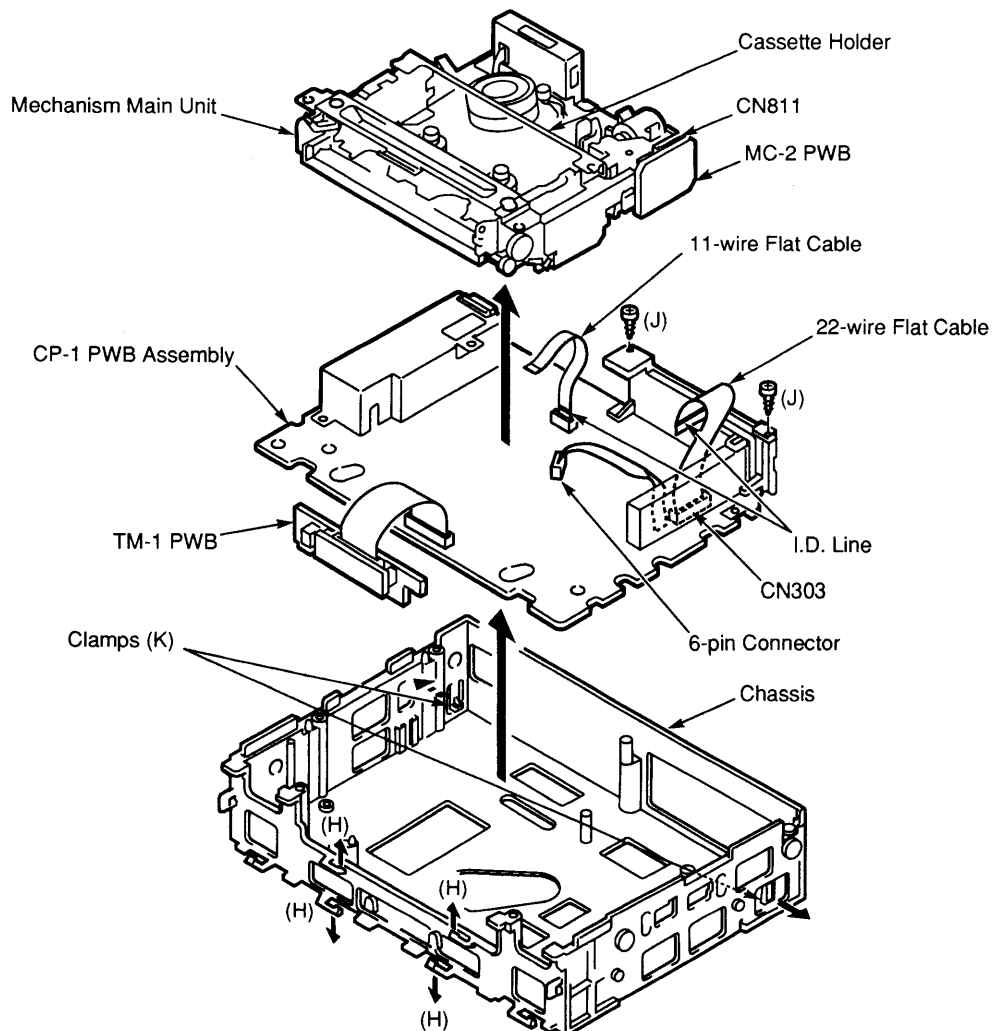
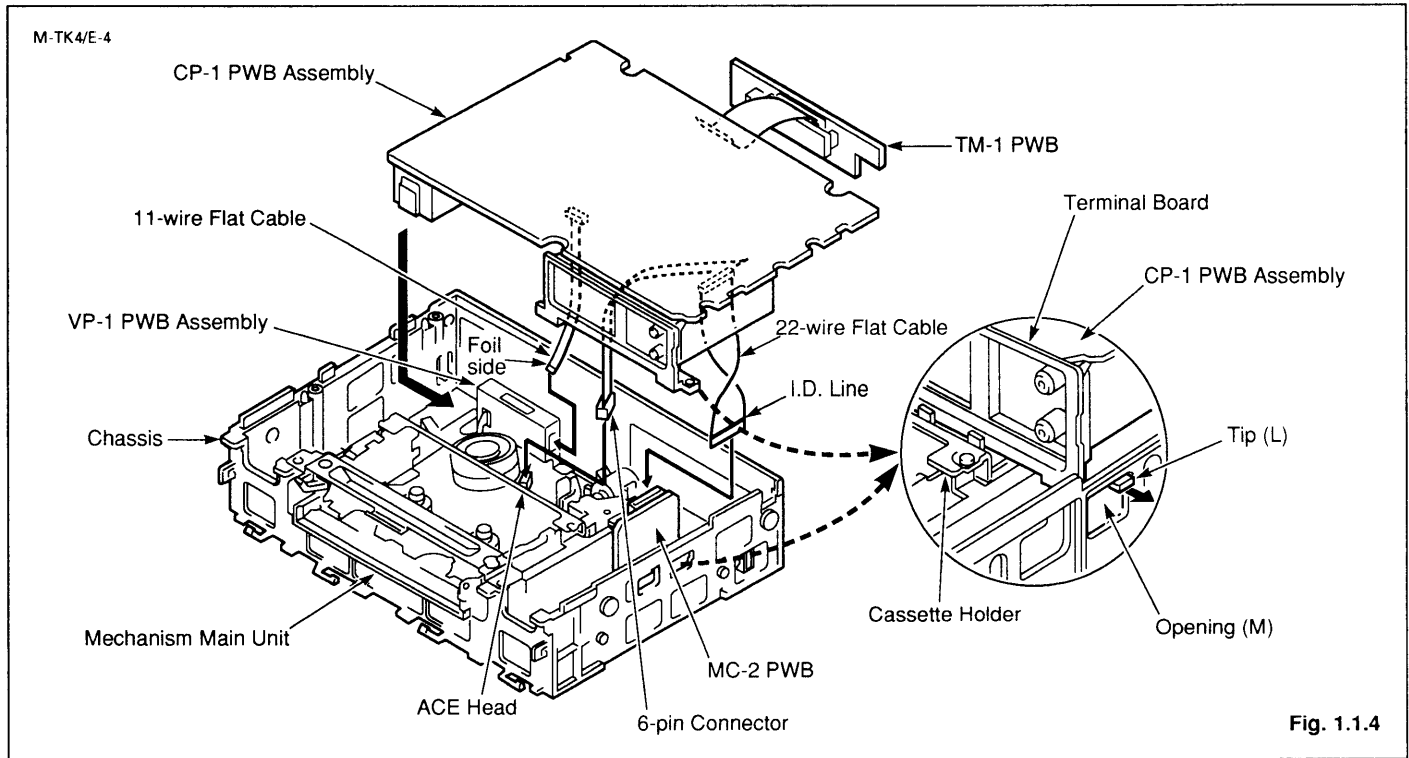


Fig. 1.1.3

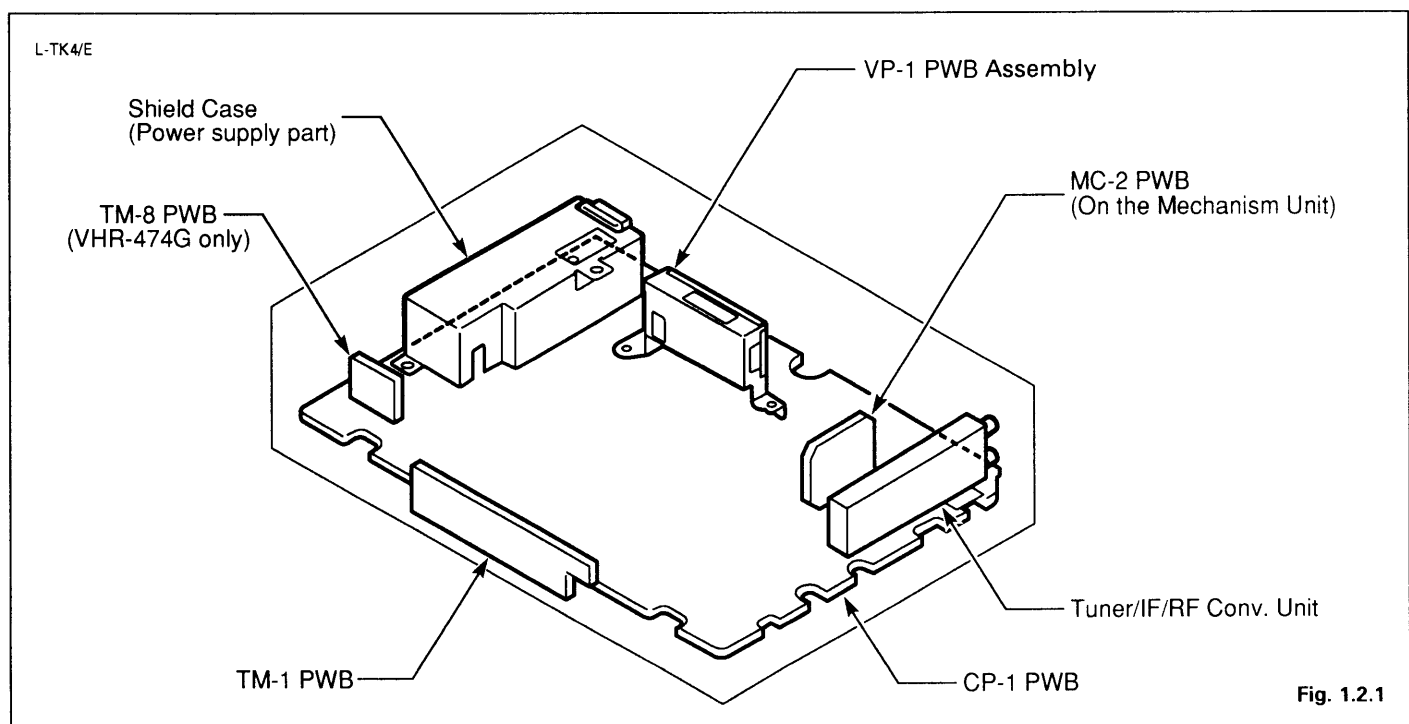
TEMPORARILY SETTING UP AND CONNECTING MAIN PWB ASSEMBLY

The following is an example of how to place and connect the main PWB not requiring a jig, when repairing the CP-1 PWB assembly (Fig. 1.1.4)

1. Place the mechanism main unit at the fixed position on the chassis.
2. Connect the 29-wire flat cable to the MC-2 PWB, and the 8-wire flat cable to the VP-1 PWB assembly, Connect the TM-1 PWB assembly to operate VCR by using the remote control.
3. Place the CP-1 PWB assembly above the mechanism main unit along the cassette holder. Insert the tip (L) of the terminal board into the opening (M) at the side of the chassis, as shown in the enlarge view.



1-2. MAIN CIRCUIT BOARD



2. ELECTRICAL ADJUSTMENT

PREPARATION

This VCR need 3 basic presetting by using the menus displayed on-screen.

After all connection have been made, then follow steps 1 to 3 to preset the VCR.

The 3 presetting steps will be displayed in sequence on TV screen. The setting are entered with the remote control.

Turn on the VCR

1. Adjusting the TV receiver to the video channel: The WELCOME screen will appear. When the video channel has been preset, press the OK button on the remote control.
 2. Language selection: Select the desired language, then press the OK button.
 3. Tuning control adjustments: When the channel position has been preset, press the MENU/TV button.
- When steps 1 to 3 have been finish, ready to operate the all operating mode.

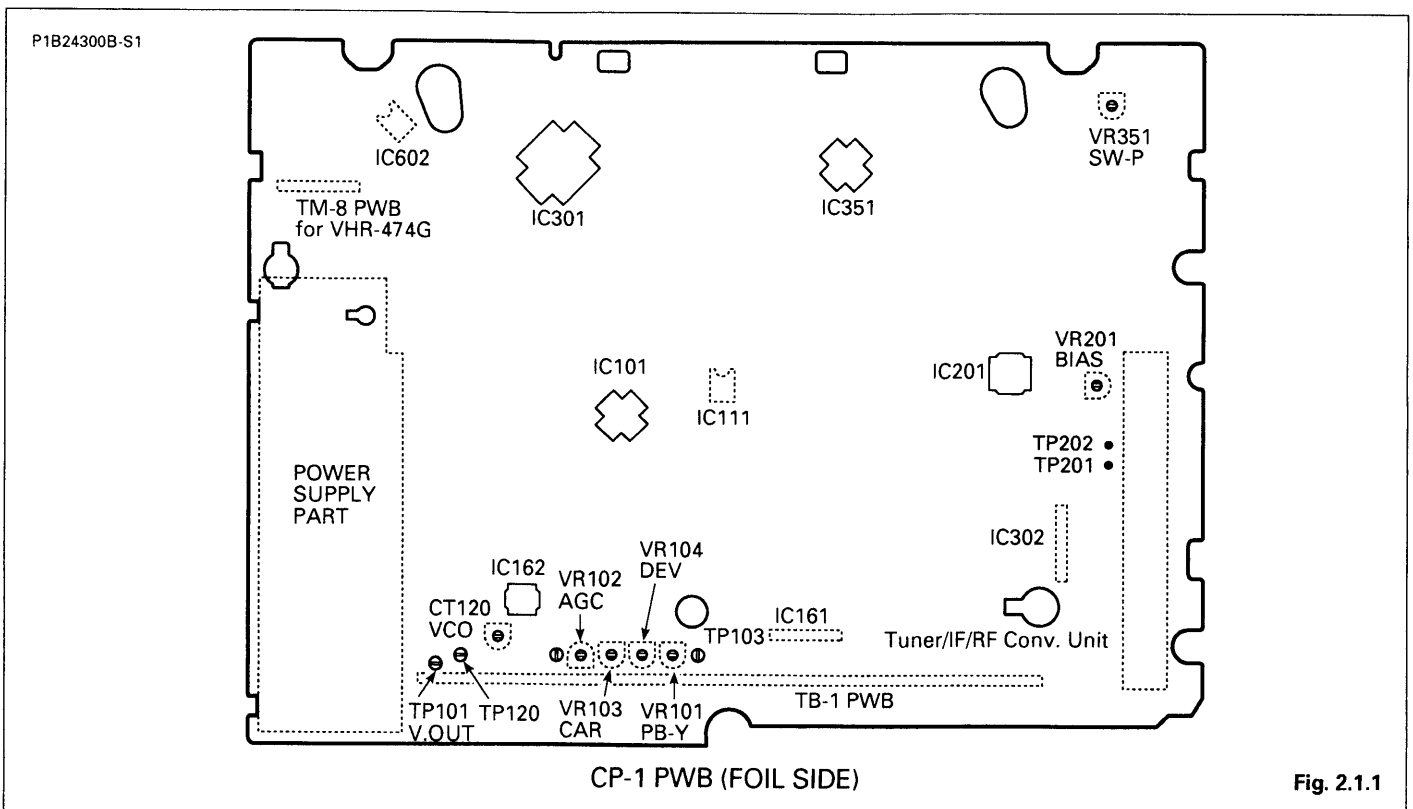
2-1. SERVO CIRCUIT ADJUSTMENT

- These adjustments should be carried out upon completion of the tape transport adjustments.
- If the tape transport adjustments (except the tilt adjustment) are carried out after these adjustments, follow the procedures again in Section 2-1-3. SWITCHING POSITION ADJ.
- When a cassette tape is loaded, auto-tracking will be set immediately after starting the first playback. As this will deviate the tracking center set, be sure to press the channel buttons (+) or (–) once directly after starting playback to prevent auto-tracking from being set.

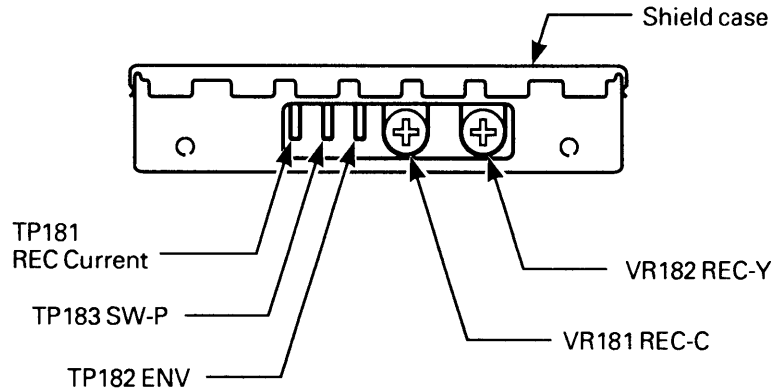
2-1-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Oscilloscope	Vertical sensitivity: 5 mV/DIV, external trigger Band width: more than 10 MHz
Alignment Tape	VHJ-0009 or VHJ-0023: SP mode, monoscope, 6 KHz
Blank Tape	VHS-type cassette tape
Monitor TV	

2-1-2. LOCATION OF ADJUSTMENT POINTS



P1B08600C-S1



VP-1 PWB Assembly

Fig. 2.1.2

Note:

- Self-recording means "Record any broadcasting or video signal and play back the just-recorded portion".

2-1-3. SWITCHING POSITION ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP101 (VIDEO OUT) TP183 (SW-P)	Oscilloscope	PLAY mode Alignment tape (VHJ-0009 or VHJ-0023)
ADJ. Location		ADJ. Value
VR351 (SW-P)		$6.5 H \pm 0.5 H$

- Set the tracking control position to the center by pressing CHANNEL buttons (+) and (-) simultaneously. (Tracking center position display in the indicator panel "T -:- ")
- Adjust VR351 (SW-P) so that the width "T" becomes $6.5 H \pm 0.5 H$ as shown in Fig. 2.1.3.

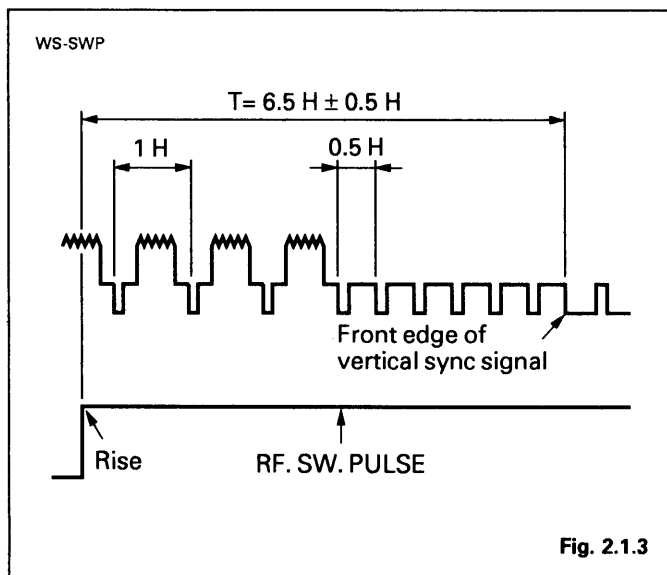


Fig. 2.1.3

2-1-4. STILL V-LOCK ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
Picture of monitor TV	Color bar generator or Broadcasting Monitor	Self-recording (SP mode) STILL mode Blank tape
ADJ. Location		ADJ. Value
CHANNEL (+) button CHANNEL (-) button		The minimum vertical shake

- Play back the just-recorded portion and then set the VCR in the STILL mode.
- Press the CHANNEL (+) button or the CHANNEL (-) button so that any vertical shake of the picture is brought to its minimum.

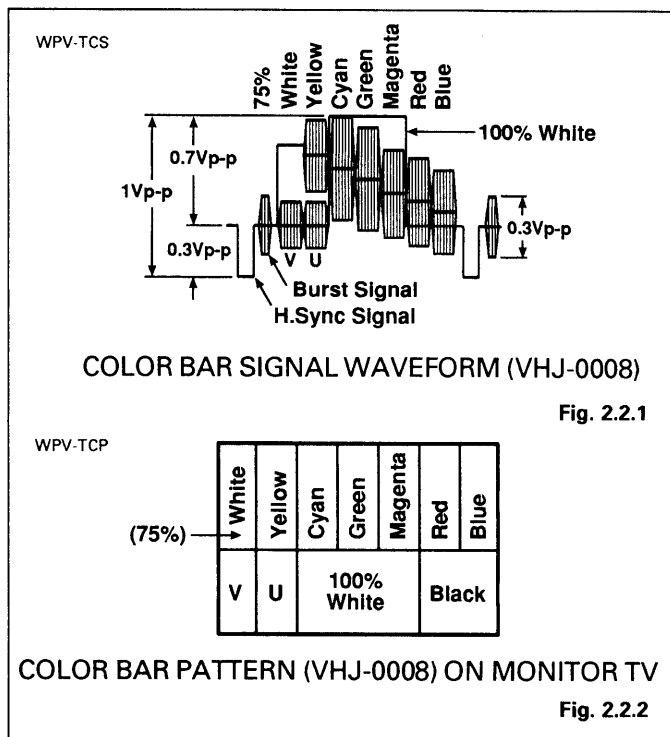
2-2. VIDEO CIRCUIT ADJUSTMENT

- Before making the following adjustments, Section 2-1. SERVO CIRCUIT ADJUSTMENT should be completed.
- Use the relay jig to provide simple adjustment of the VP-1 PWB assembly.

2-2-1. TEST EQUIPMENT AND STANDARDS REQUIRED

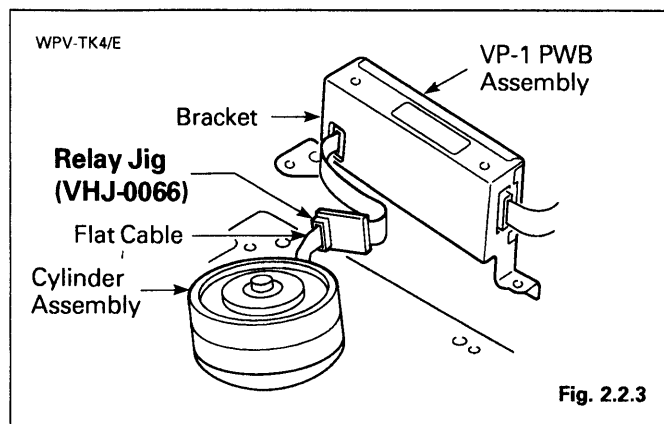
Color Bar Signal Generator	PAL Color bar signal with 100% white level (EBU color bar signal)
Oscilloscope	Vertical sensitivity: 5 mV/DIV, external trigger Band width: more than 10 MHz
Digital Voltmeter	DC range
Alignment Tape	VHJ-0008 or VHJ-0023: SP mode, color bar, 1kHz (Color bar signal waveform is described below. Refer to Fig. 2.2.1)
Blank Tape	VHS-type cassette tape
Oscilloscope Probe	Input capacity: less than 25 pF (10:1) less than 40 pF (1:1) Covering frequency: DC ~ 40 MHz (10:1) DC ~ 30 MHz (1:1)
Frequency Counter	8 significant digits
Adjustment Relay Jig	VHJ-0066: 7-wire flat cable for VP-1 PWB Assembly

ALIGNMENT TAPE COLOR BAR SIGNAL

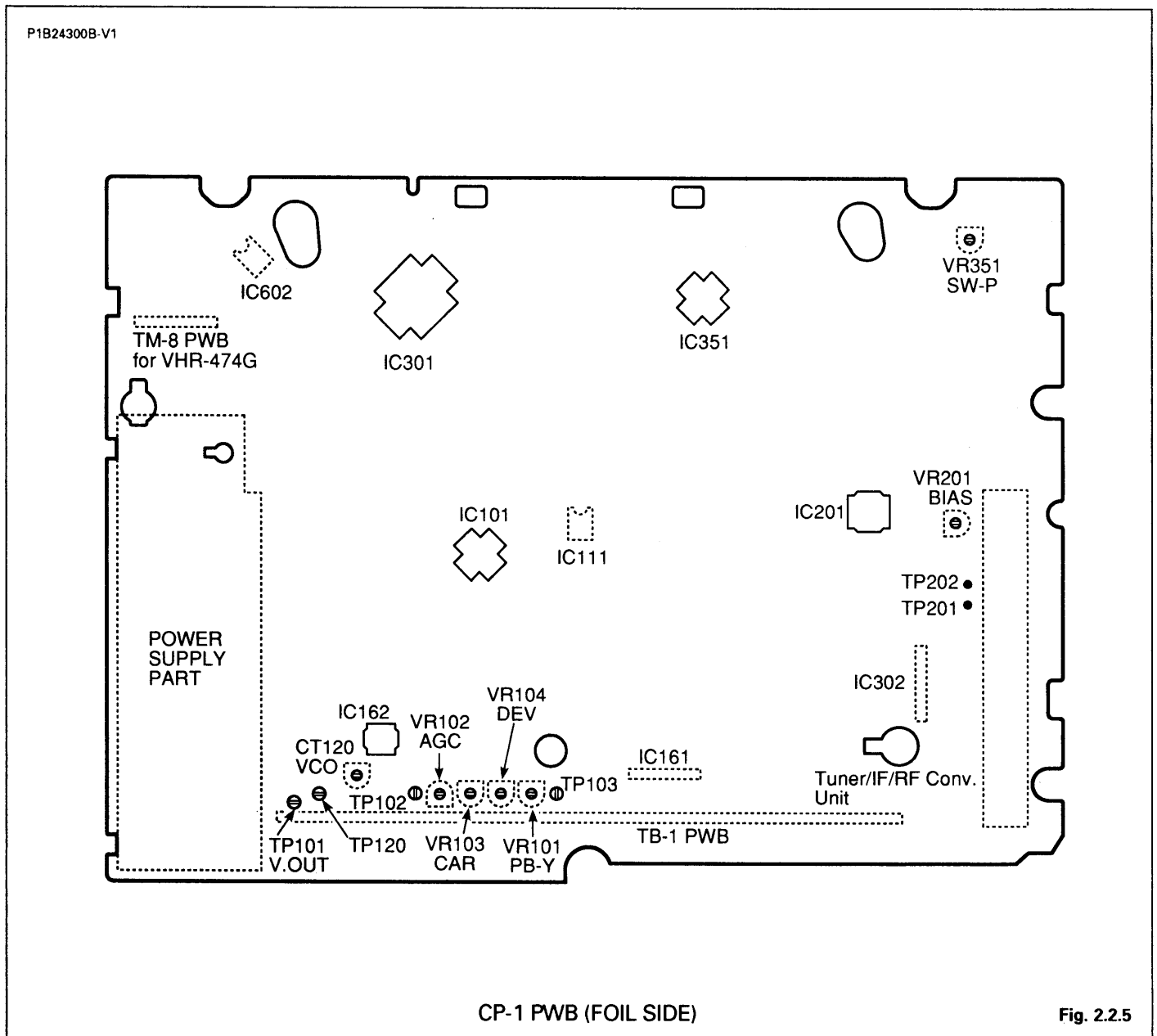
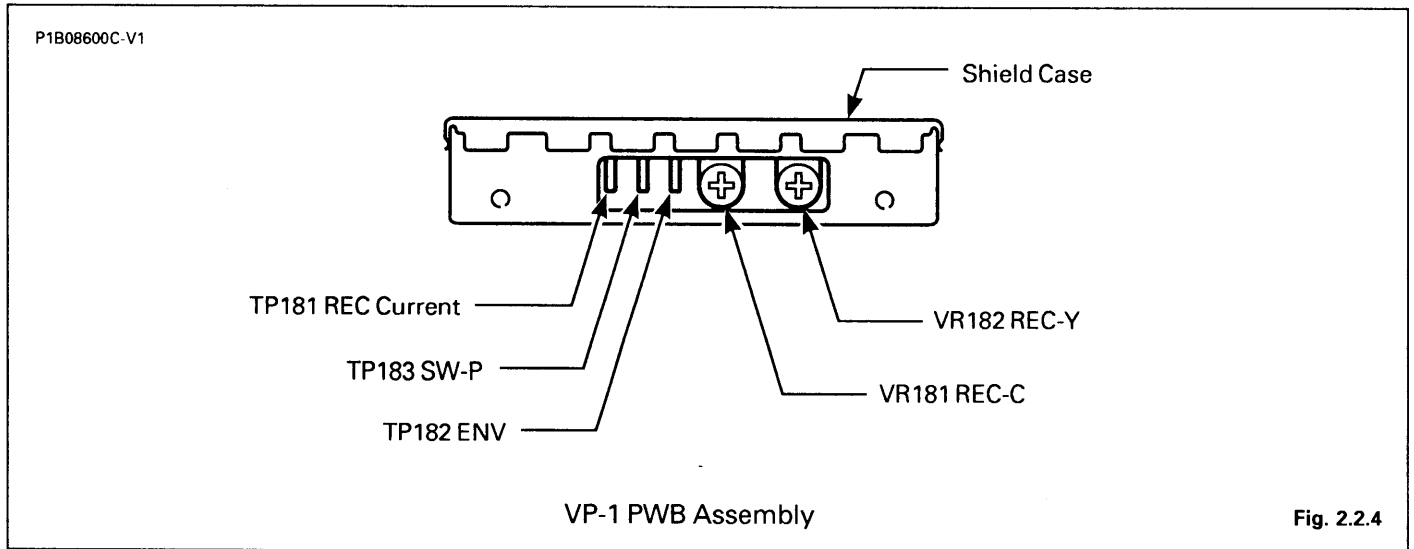


2-2-2. ADJUSTMENT RELAY JIG

Connect the flat cable end from the cylinder assembly to the VP-1 PWB assembly using the relay jig to provide simple repairing and adjustment of the VP-1 PWB assembly, as shown in Fig. 2.2.3. Further, when adjusting the VP-1 PWB assembly, be sure to make contact an end of shield case with bracket of the VP-1 PWB assembly to maintain the shield effect. If the VP-1 PWB assembly does not contact, there is insufficient ground and no proper play back image can be obtained.



2-2-3. LOCATION OF ADJUSTMENT POINTS



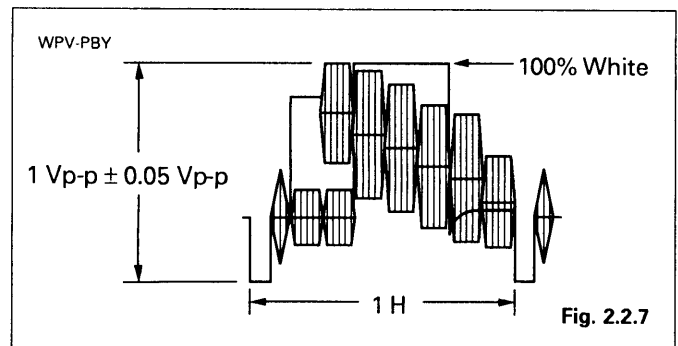
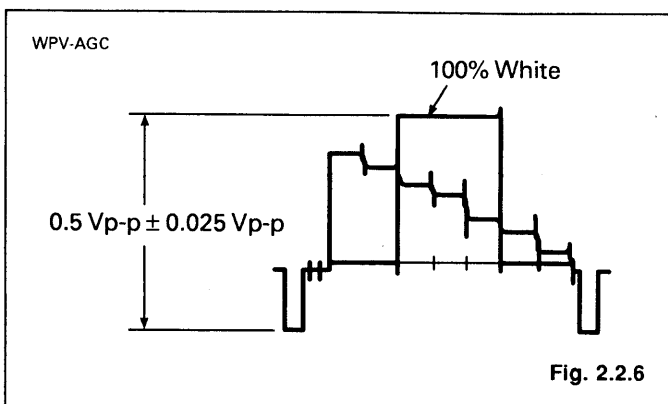
Notes:

- Self-recording means "Record the video signal and play back the just-recorded portion".
- Connect the monitor TV to the VIDEO OUTPUT terminal, before making following adjustments.

2-2-4. AGC LEVEL ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP102	Color bar generator Oscilloscope (10:1 probe)	E-E mode
ADJ. Location		ADJ. Value
VR102 (AGC)		$0.5 \text{ Vp-p} \pm 0.025 \text{ Vp-p}$

1. Connect the color bar generator to the VIDEO INPUT terminal.
2. Adjust VR102 (AGC) for $0.5 \text{ Vp-p} \pm 0.025 \text{ Vp-p}$ as shown in Fig. 2.2.6.

**2-2-6. CARRIER SET ADJ.**

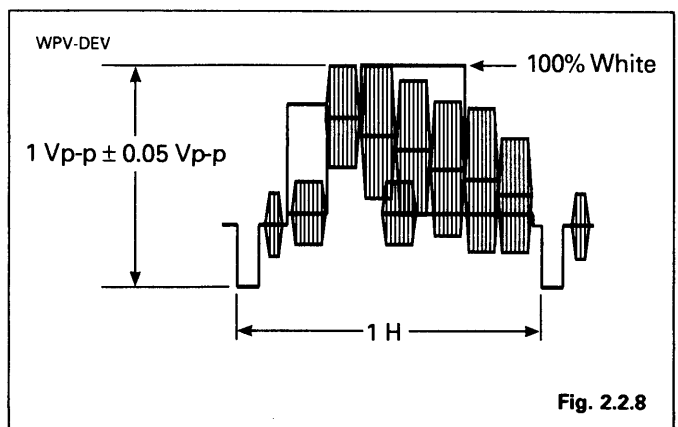
Measuring Point	Measuring Equipment	ADJ. Condition
TP103	Color bar generator Frequency counter	REC (SP) mode
ADJ. Location		ADJ. Value
VR103 (CAR)		$3.83 \text{ MHz} \pm 0.05 \text{ MHz}$

1. Connect the color bar generator to the VIDEO INPUT terminal.
2. After removing the first color bar signal input from the video input terminal, immediately adjust VR103 (CAR) so that the frequency becomes $3.83 \text{ MHz} \pm 0.05 \text{ MHz}$.

2-2-7. DEVIATION ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP101	Color bar generator Oscilloscope (10:1 probe)	Self-recording (SP) mode Blank tape
ADJ. Location		ADJ. Value
VR104 (DEV)		$1 \text{ Vp-p} \pm 0.05 \text{ Vp-p}$

1. Record the color bar signal on the blank tape.
2. Play back of the just-recorded portion.
3. Adjust VR104 (DEV) for $1 \text{ Vp-p} \pm 0.05 \text{ Vp-p}$ as shown in Fig. 2.2.8.
4. If the adjustment value is not satisfactory, adjust VR104 (DEV) and repeat steps 2 to 3.

**2-2-5. PB-Y LEVEL ADJ.**

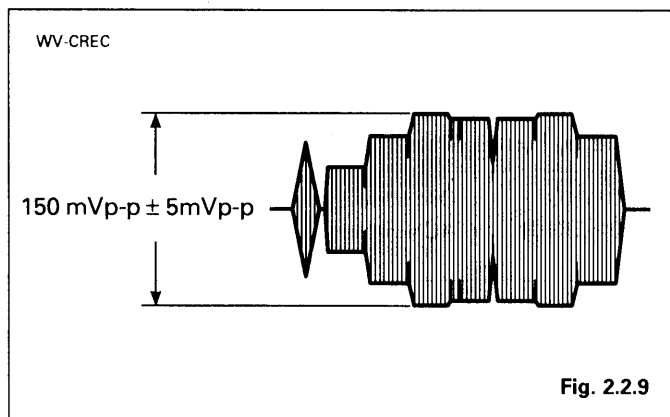
Measuring Point	Measuring Equipment	ADJ. Condition
TP101	Oscilloscope (10:1 probe)	PLAY (SP) mode Alignment tape (VHJ-0008 or VHJ-0023)
ADJ. Location		ADJ. Value
VR101 (PB-Y)		$1 \text{ Vp-p} \pm 0.05 \text{ Vp-p}$

1. Terminate the VIDEO OUTPUT terminal with a 75Ω resistor.
2. Adjust VR101 (PB-Y) for the video luminance signal level of $1 \text{ Vp-p} \pm 0.05 \text{ Vp-p}$. (Refer to Fig. 2.2.7)

2-2-8. C REC CURRENT ADJ.

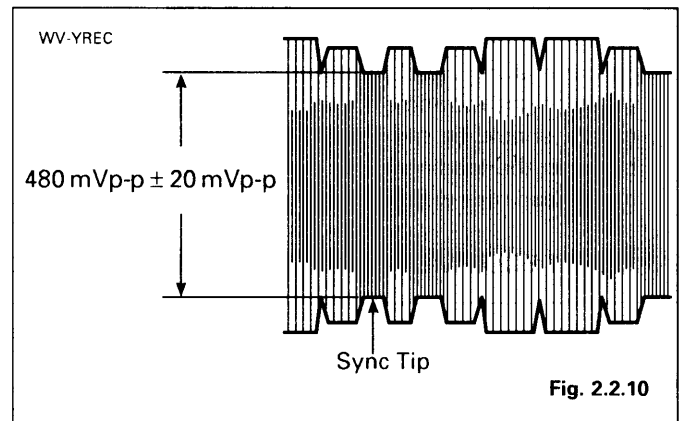
Measuring Point	Measuring Equipment	ADJ. Condition
TP181 (on VP-1 PWB)	Color bar generator Oscilloscope (1:1 probe)	REC (SP) mode Blank tape
ADJ. Location		ADJ. Value
VR181 (REC-C)		150 mVp-p $\pm$ 5 mVp-p

1. Connect the ground of the oscilloscope to the shield case of the VP-1 PWB assembly.
2. Adjust VR182 (REC-Y) for the minimum video luminance signal level.
3. Adjust VR181 (REC-C) so that the video chrominance signal level is **150 mVp-p $\pm$ 5 mVp-p**. (Refer to Fig. 2.2.9)

**2-2-9. Y REC CURRENT ADJ.**

Measuring Point	Measuring Equipment	ADJ. Condition
TP181 (on VP-1 PWB)	Color bar generator Oscilloscope (1:1 probe)	REC(SP)mode Blank tape
ADJ. Location		ADJ. Value
VR182 (REC-Y)		480 mVp-p $\pm$ 20 mVp-p

1. Connect the ground of the oscilloscope to the shield case of the VP-1 PWB assembly.
2. Adjust VR182 (REC-Y) so that the video luminance signal level at the sync tip is **480 mVp-p $\pm$ 20 mVp-p**. (Refer to Fig. 2.2.10)

**2-2-10. VCO (on screen assist) ADJ.**

Measuring Point	Measuring Equipment	ADJ. Condition
TP120	Color bar generator Digital voltmeter	E-E mode
ADJ. Location		ADJ. Value
CT120 (VCO)		2.5 V $\pm$ 0.3 V

1. Connect the digital voltmeter (DC range) to TP120 and GND.
2. Adjust CT120 (VCO) so that the voltage is **2.5 V $\pm$ 0.3 V**.

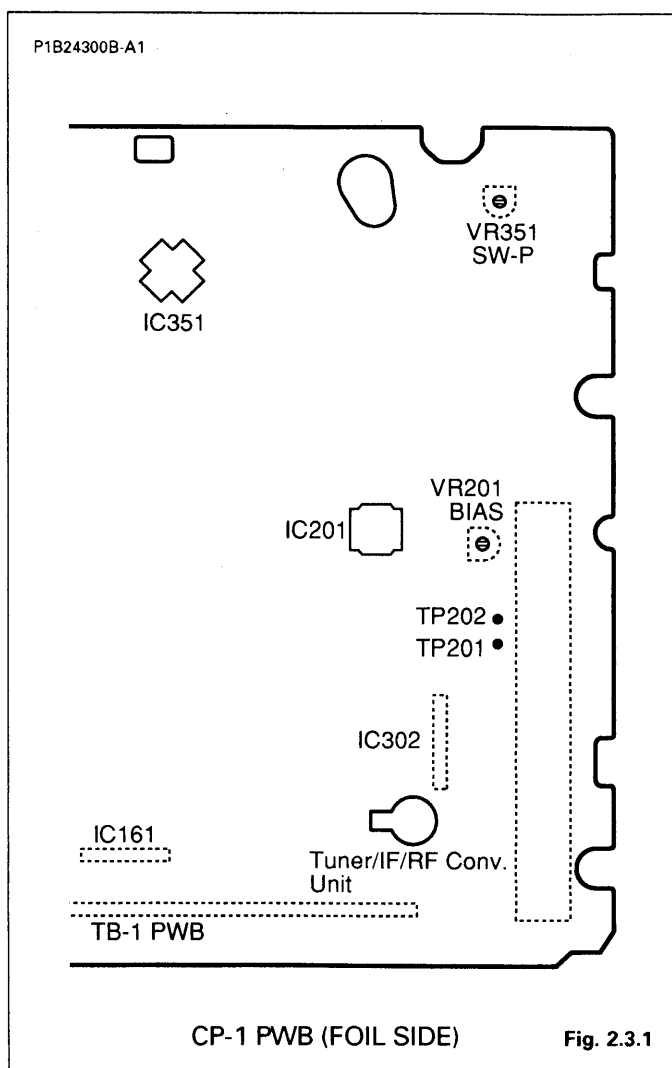
2-3. AUDIO CIRCUIT ADJUSTMENT

- Before making these adjustments, (especially, the tape guide height and audio control erase head height adjustments) should be carried out, so that the tape traveling between the loading guide pole and the audio control erase head runs without fluttering, twisting, curling.
- Before making these adjustments, Section 2-1. SERVO and Section 2-2. VIDEO circuit adjustments should be carried out.

2-3-1. TEST EQUIPMENT AND STANDARDS REQUIRED

Oscilloscope	Vertical sensitivity : 10 mV/DIV Band width : more than 30 MHz
AC Voltmeter	Effective value indication Input frequency : 10 Hz ~ 20 kHz Input Impedance : more than 1 MΩ Measurement level : 1mV (full scale)
Blank Tape	VHS-type cassette tape

2-3-2. LOCATION OF ADJUSTMENT POINTS



2-3-3. BIAS LEVEL ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
TP201 (HOT) TP202 (GND)	Oscilloscope AC voltmeter	REC mode Blank tape
ADJ. Location		ADJ. Value
VR201 (BIAS)		26 mVrms

- Load the VCR with a blank tape and select the record mode without all incoming signal.
- After confirming on the oscilloscope that a $70 \text{ kHz} \pm 5 \text{ kHz}$ sine wave is being output, adjust VR201 (BIAS) so that the AC voltmeter's reading is **26 mVrms**.

2-4. TUNER AND IF CIRCUITS ADJUSTMENT

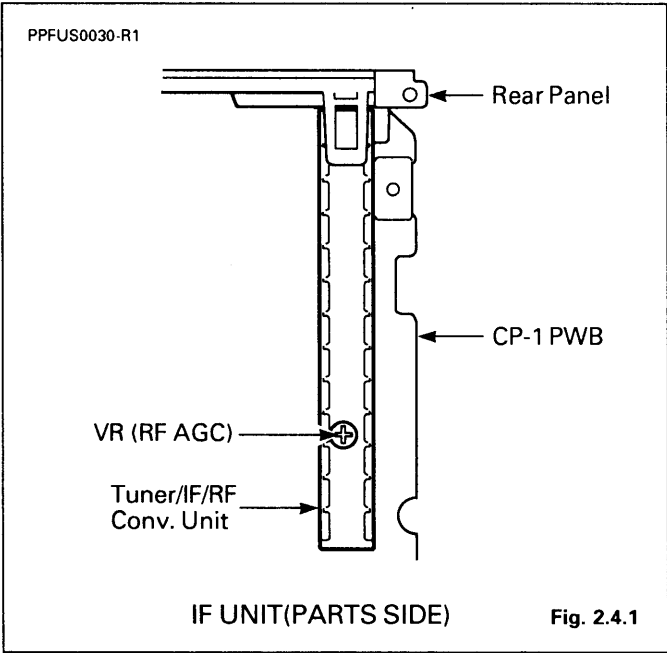
- When any malfunction occurs in the TUNER circuit the whole unit must be replaced.
- An adjustment of the IF circuit is shown as follows.

Note: The TUNER unit does not need any adjustments, because precise adjustments have been performed before shipment.

2-4-1. TEST EQUIPMENT AND STANDARD REQUIRED

Monitor TV	
------------	--

2-4-2. LOCATION OF ADJUSTMENT POINT



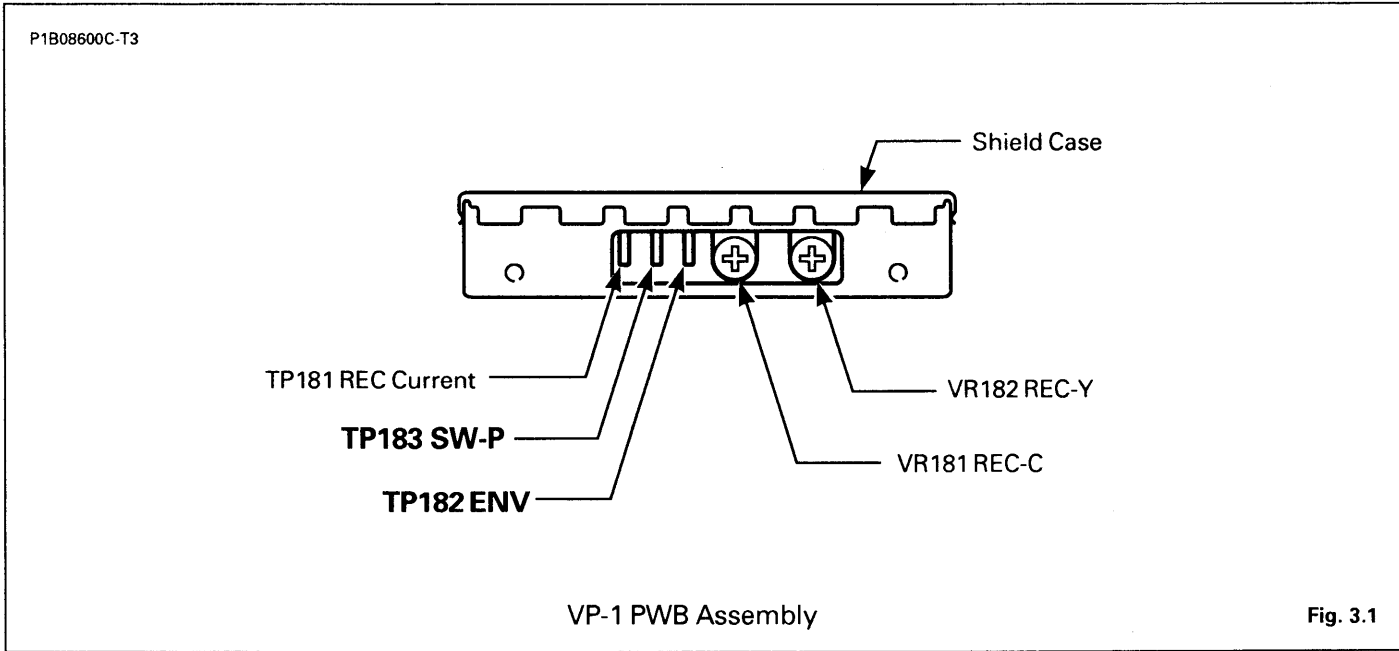
2-4-3. RF AGC ADJ.

Measuring Point	Measuring Equipment	ADJ. Condition
Picture of monitor TV	Monitor TV	E-E mode
ADJ. Location		ADJ. Value
VR (RF AGC) (on the IF circuit)		S/N is best point

1. Connect the monitor TV to VHF/UHF ANTENNA OUTPUT terminal.
2. Connect the VHF antenna to VHF/UHF ANTENNA INPUT terminal.
3. Receive the middle electrical field (70 dBμ ~ 90 dBμ) of the VHF high channel, and slowly turn VR (RF AGC) from the point where snow-noise is present to the point where it just disappears from the monitor TV.
4. Confirm by monitor TV that there is no beat and saturation (S/N is best point) when receiving any TV channel.

3. TEST POINT FOR TAPE PATH ADJUSTMENT

Test point TP182 (ENV) and TP183 (SW-P) for tape path adjustment is shown in Figure below.
For adjustment, refer to the Mechanism Service Technical Information(WM-530599 and MS531346).



4. PARTS LIST

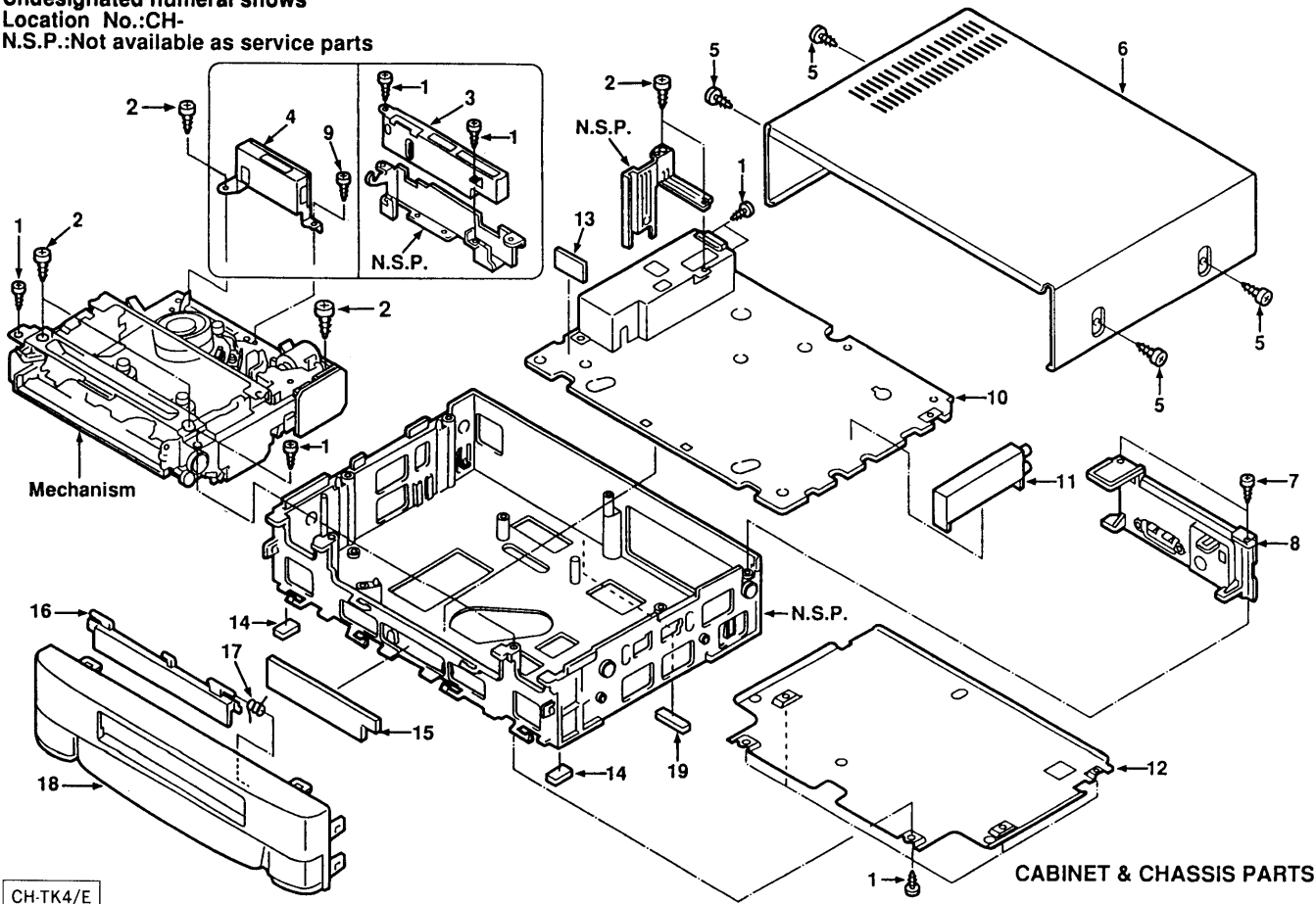
LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
ACCESSORIES					
	645 004 7671	REMOCON(WITH COVER BATTERY) (VHR-474E ONLY)		613 144 5819	CUSHION, BACK(VHR-474G ONLY)
OR	645 002 6751	REMOCON(WITH COVER BATTERY) (VHR-474G ONLY)	OR	613 099 1768	POLYE COVER, INNER-K(VHR-474E ONLY)
	613 145 3227	COVER BATTERY(FOR REMOCON)		613 139 8047	POLYE COVER, INNER-K(VHR-474G ONLY)
	613 153 5893	INSTRUCTION MANUAL(VHR-474E ONLY)	*****		
OR	613 153 8733	INSTRUCTION MANUAL(VHR-474G ONLY)	CABINET & CHASSIS PARTS		
	613 132 6132	CABLE, ANT(VHR-474E ONLY)	CH-1	411 137 0007	SCR L-TPG BIN 3X10
OR	613 132 5975	CORD(VHR-474E ONLY)	CH-2	411 021 7907	SCR S-TPG BIN 4X12
OR	613 077 4415	CABLE, ANT(VHR-474G ONLY)	CH-3	613 154 1832	COMPL PWB, VP-1(VHR-474E ONLY)
OR	613 132 6125	CABLE, ANT(VHR-474G ONLY)	CH-4	613 154 4932	COMPL PWB, VP-1(VHR-474G ONLY)
OR	645 003 1182	CABLE, ANT PAL(VHR-474G ONLY)	CH-5	412 028 9406	SPECIAL SCREW
OR	645 003 3711	CABLE, ANT PAL(VHR-474G ONLY)	CH-6	613 140 7015	COVER TOP(VHR-474G ONLY)
⚠	613 136 6411	CORD, POWER(VHR-474E ONLY)	CH-7	411 021 3800	SCR S-TPG BIN 3X10
OR	⚠ 613 140 7473	CORD, POWER(VHR-474E ONLY)	CH-8	613 153 7866	TERMINAL
OR	⚠ 613 095 0550	CORD, POWER(VHR-474G ONLY)	CH-9	411 001 1901	SCR S-TPG BIN 3X6
OR	⚠ 613 133 2393	CORD, POWER(VHR-474G ONLY)	CH-10	613 154 1986	COMPL PWB, CP-1-A(VHR-474G ONLY)
OR	⚠ 645 002 6805	CORD, POWER(VHR-474G ONLY)	OR	613 153 4001	COMPL PWB, CP-1-A(VHR-474E ONLY)
OR	⚠ 645 003 3766	CORD, POWER(VHR-474G ONLY)	CH-11	645 003 9249	TUNER, RF/TU/IF(VHR-474G ONLY)
			OR	645 001 0484	TUNER, RF/TU/IF(VHR-474E ONLY)

PACKING MATERIALS					
	613 153 5473	CARTON CASE(VHR-474E ONLY)	CH-12	613 139 2182	COVER BOTTOM
OR	613 154 2952	CARTON CASE(VHR-474G ONLY)	CH-13	613 134 4730	COMPL PCB, TM-8(VHR-474G ONLY)
	613 150 2277	CUSHION, FRONT(VHR-474E ONLY)	OR	613 154 4925	COMPL PWB, TM-7 (OPTION BOARD FOR VHR-474E ONLY)
OR	613 144 5802	CUSHION, FRONT(VHR-474G ONLY)	CH-14	613 121 1001	STAND, FELT, FRONT
	613 150 2284	CUSHION, BACK(VHR-474E ONLY)	CH-15	613 153 2465	COMPL PWB, TM-1
			CH-16	613 153 5442	DOOR CASSETTE(VHR-474E ONLY)
			OR	613 154 2556	DOOR CASSETTE(VHR-474G ONLY)
			CH-17	613 140 7459	SPRING
			CH-18	613 153 5312	ASSY, CABINET FRONT(VHR-474E ONLY)
			OR	613 154 2495	ASSY, CABINET FRONT(VHR-474G ONLY)
			CH-19	613 145 0707	STAND, BACK

Undesignated numeral shows

Location No.:CH-

N.S.P.:Not available as service parts

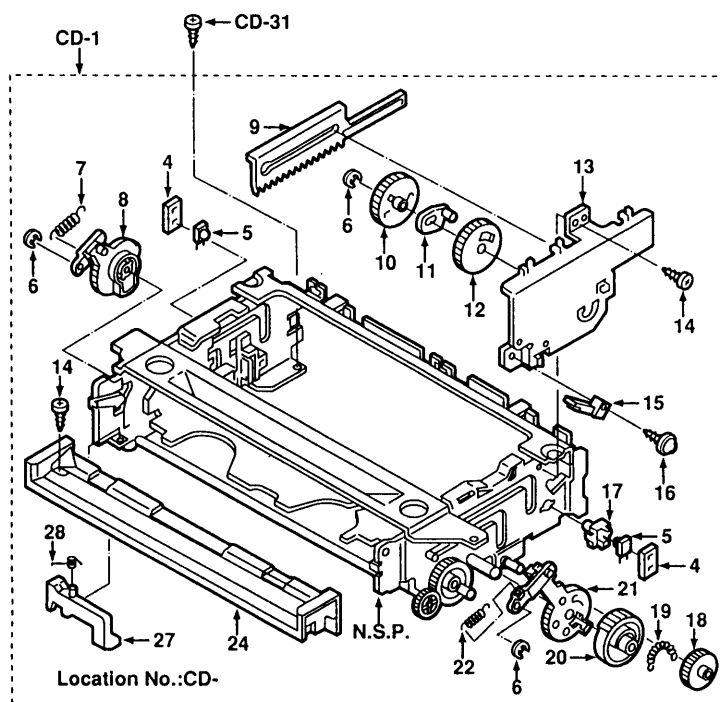


CH-TK4/E

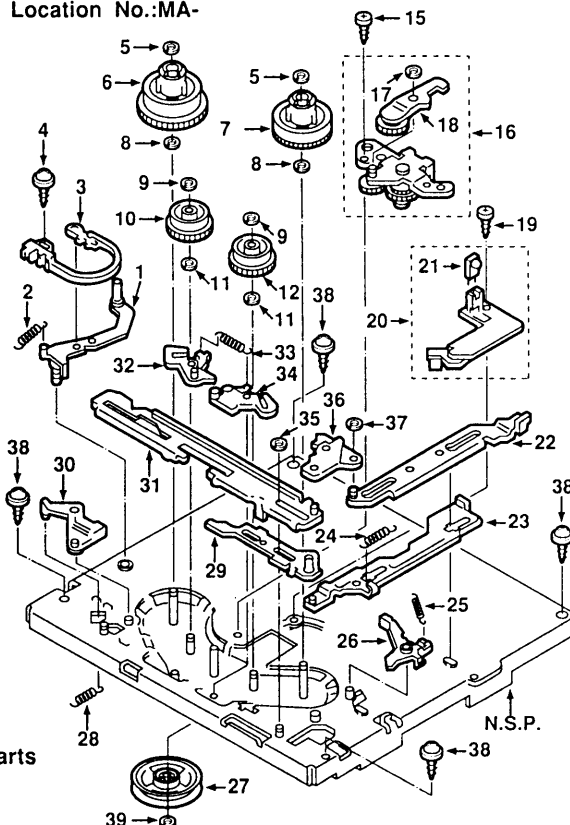
MECHANISM PARTS

CB602700
MB0046##

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
MECHANISM PARTS 1			MA-8	412 021 5306	SPECIAL WASHER 3.1X6X0.3
CD-1	613 142 9581	COMPL,CASSETTE MECHANISM	OR	412 015 8900	SPECIAL WASHER 3.1X6X0.4
CD-4	613 022 0585	LID	OR	412 015 8504	SPECIAL WASHER 3.1X6X0.5
CD-5	407 098 3201	PHOTO COUPLE PN150SAN	MA-9	411 109 1506	WASHER Y 2.1X6X0.25
CD-6	411 015 9801	RING E 2.3	OR	411 109 1407	WASHER Y 2.1X5X0.25
CD-7	613 022 1643	SPRING, LINK L	MA-10	613 135 7150	GEAR, REEL SUPPLY
CD-8	613 022 0073	ASSY, GEAR, LEVER L	OR	613 142 9116	GEAR, REEL SUPPLY
CD-9	613 022 2695	RACK	MA-11	412 026 7305	SPECIAL WASHER 2.6X6X0.25
CD-10	613 141 6109	GEAR, LOCK	MA-12	613 135 7167	GEAR, REEL TAKE UP
CD-11	613 139 8962	ASSY, LEVER, PINION	OR	613 142 9109	GEAR, REEL TAKE UP
CD-12	613 022 2626	GEAR, PINION	MA-15	412 042 4302	SPECIAL SCREW 2.6X4
CD-13	613 021 9657	ASSY, BRACKET, GEAR	MA-16	613 135 7099	COMPL, IDLER, CLUTCH
CD-14	411 027 1305	SCR S-TPG BIN 2.6X4	MA-17	411 120 1301	WASHER Y 2.1X4X0.25
CD-15	613 095 0949	SW, SPECIAL	MA-18	613 135 7082	ASSY, IDLER
CD-16	411 106 9208	SCR PAN+SW+W 2X9	MA-19	411 021 3107	SCR S-TPG BIN 2.6X8
CD-17	613 022 0943	HOLDER, TRANSISTOR	MA-20	613 120 9053	COMPL PCB, MC-4
CD-18	613 022 2619	GEAR, IDLER	MA-21	407 016 7205	LED LN59
CD-19	613 022 1667	SPRING, GEAR MAIN	MA-22	613 021 9985	ASSY, SLIDE, ACT PLATE
CD-20	613 022 2596	GEAR, MAIN	MA-23	613 142 9086	SLIDE, C BRAKE
CD-21	613 022 0097	ASSY, GEAR, LEVER R	MA-24	613 022 1612	SPRING, RETURN SLIDE
CD-22	613 022 1674	SPRING, LINK R	MA-25	613 022 1506	SPRING, SUB T
CD-24	613 022 4064	BOARD, UNDER	MA-26	613 098 0106	ASSY, BRAKE SUB T
CD-27	613 124 5006	LEVER, SAFETY SW	MA-27	613 077 3647	PULLEY, REEL
CD-28	613 125 6149	SPRING, SAFETY SW	MA-28	613 022 1490	SPRING, SUB SUPPLY
CD-31	411 001 8702	SCR BIN 3X6	MA-29	613 022 2374	SLIDE, ACT BRAKE
MA-1	613 100 0391	ASSY, LEVER, TENSION	MA-30	613 084 8871	BRAKE, SUB SUPPLY
MA-2	613 085 7996	SPRING, LEVER TENSION	MA-31	613 022 0004	ASSY, SLIDE, M PLATE
MA-3	613 021 9701	ASSY, HOLDER, BAND	MA-32	613 080 9216	ASSY, BRAKE, SUPPLY
MA-4	411 144 2803	SCR PAN+SW+W 2.6X6	MA-33	613 086 2914	SPRING, MAIN BRAKE
MA-5	411 109 1605	WASHER Y 2.6X6X0.25	MA-34	613 080 9209	ASSY, BRAKE, TAKE UP
MA-6	613 135 7068	ASSY, REEL, SUPPLY	MA-35	411 109 3005	WASHER Y 2.6X5X0.5
OR	613 135 7549	ASSY, REEL, SUPPLY	MA-36	613 022 2015	LEVER, CONT PLATE
MA-7	613 135 7075	ASSY, REEL, TAKE UP	MA-37	412 015 9501	SPECIAL WASHER
OR	613 143 2963	ASSY, REEL, TAKE UP	MA-38	411 021 7907	SCR S-TPG BIN 4X12
			MA-39	412 045 4606	SPECIAL WASHER 2.4X6X0.25



Undesignated numeral shows
Location No.: MA-



N.S.P.: Not available as service parts

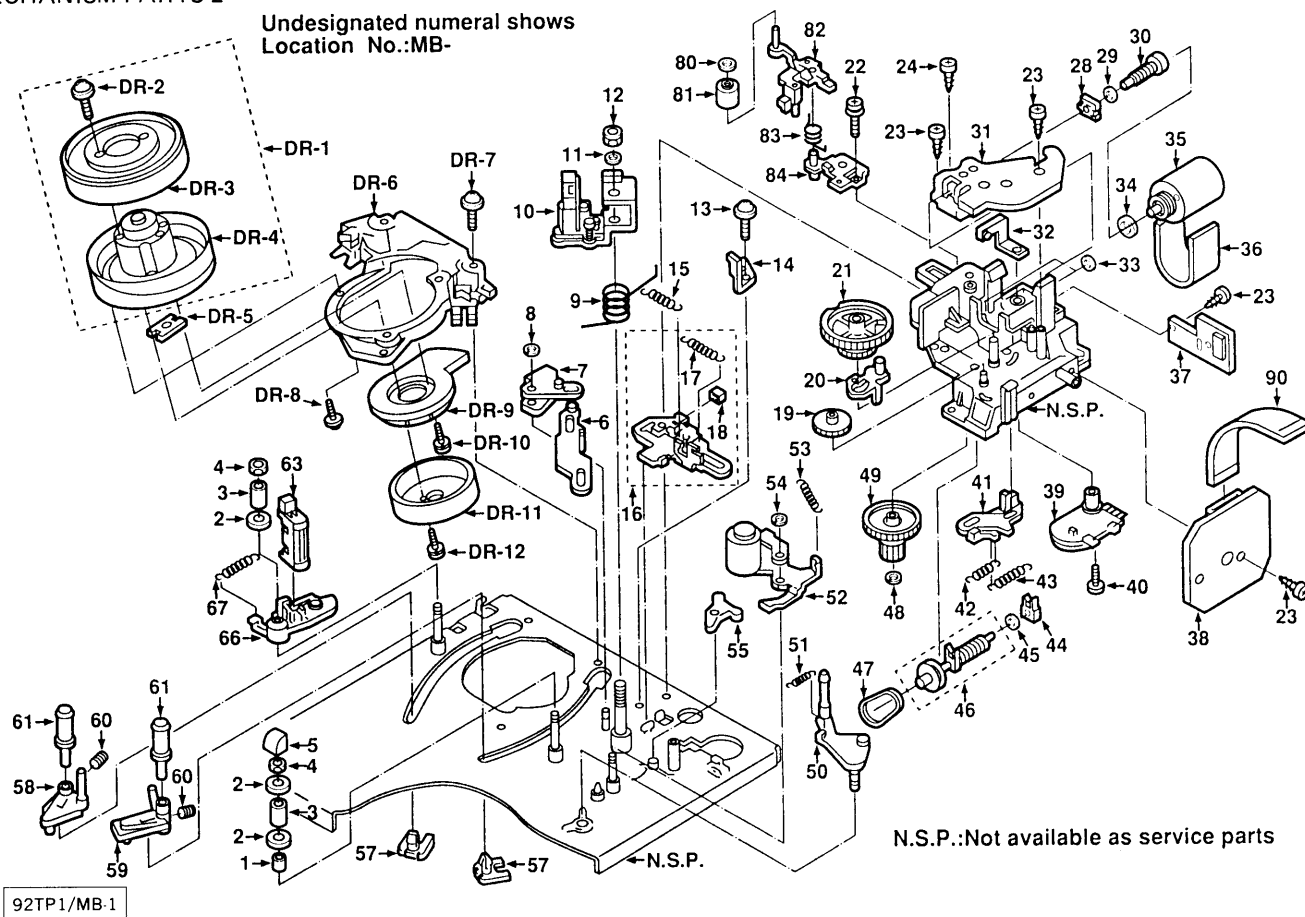
92EP1/MA-1

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
MECHANISM PARTS 2					
DR-1	613 096 2812	COMPL,CYLINDER,2N4P-R	MB-54	411 109 2107	WASHER Y 3.6X6X0.5
DR-2	411 038 1608	SCR PAN+W 3X8	MB-55	613 078 8160	COMPL,LEVER,ACT BRAKE
DR-3	613 096 2829	ASSY,CYLINDER,UPR 2N4P-R	MB-57	613 135 7655	PLATE,BGR
DR-4	613 022 0325	ASSY,CYLINDER,LWR 4	MB-58	613 145 5009	ASSY,MOUNTING,ROLLER S
DR-5	613 097 2170	SPACER,MOTOR 0.3T	MB-59	613 145 5016	ASSY,MOUNTING,ROLLER T
DR-6	613 088 9072	BASE,CYLINDER	MB-60	411 063 0904	SCR SET HEX-SCT 2X3
DR-7	411 047 7509	SCR PAN+FLG 3X6	MB-61	613 022 0233	ASSY,GUIDE,ROLLER
DR-8	411 047 5000	SCR PAN+FLG 2.6X8	MB-63	645 000 2533	HEAD,ERASE FULL
DR-9	613 085 7279	STATOR,MOTOR CYL	MB-66	613 153 1871	LEVER,FE HEAD
OR	613 132 3520	STATOR,MOTOR CYL	MB-67	613 022 1698	SPRING,ERASE HEAD
DR-10	411 044 8301	SCR PAN+SW 2.3X10	MB-80	411 109 1803	WASHER Y 2.6X6X0.5
OR	411 044 9209	SCR PAN+SW 2.3X8	MB-81	613 119 8562	ASSY,ROLLER,CLEANER
DR-11	613 022 4019	ROTOR,MOTOR CYL	MB-82	613 143 1881	ASSY,LEVER,CLEANER
DR-12	411 044 9001	SCR PAN+SW 2.3X6	MB-83	613 119 8593	SPRING
			MB-84	613 142 9055	BRACKET,CLEANER
			MB-90	613 153 8627	FLEXIBLE FLAT CABLE,CN811-CN303

			MECHANISM PARTS 3		
MB-1	613 123 4802	SLEEVE	MC-1	645 000 5053	MOTOR,CAPSTAN DC 3W
MB-2	613 053 3227	SPECIAL WASHER	MC-2	613 022 2978	BELT,REEL DRIVE
MB-3	613 123 4970	TAPE GUIDE	MC-3	613 135 4609	COMPL,LEVER,CLUTCH
MB-4	411 004 5302	NUT HEX (3)	MC-6	613 022 1520	SPRING,LEVER CLUTCH
MB-5	613 123 9418	CAP	MC-7	613 082 3434	LEVER,CHANGE CLUTCH
MB-6	613 152 8079	SLIDE,ACT PINCH	MC-8	613 022 1711	SPRING,CHANGE CLUTCH
MB-7	613 021 9800	ASSY,LEVER,CAM PINCH	MC-9	613 081 7518	ASSY,BRAKE CAPSTAN
MB-8	411 109 2008	WASHER Y 3.1X8X0.5	MC-10	613 098 2285	SPRING,CAPSTAN
MB-9	613 022 1797	SPRING,ACE HEAD	MC-12	411 021 3107	SCR S-TPG BIN 2.6X8
MB-10	613 144 5741	COMPL,BRACKET,HEAD	MC-13	411 109 2008	WASHER Y 3.1X8X0.5
MB-11	613 110 1692	SLEEVE,ACE HEAD	MC-14	613 142 9093	SLIDE,CAM PLATE
MB-12	412 015 8207	SPECIAL NUT (M5)	MC-15	613 022 2701	CAM,MODE
MB-13	411 120 0007	SCR PAN+SW+W 2.6X5	MC-16	411 109 1902	WASHER Y 3.1X6X0.5
MB-14	613 120 3631	BRACKET,STOPPER	MC-17	613 135 7686	CAM,MAIN
MB-15	613 022 1582	SPRING,SLIDE BRAKE	MC-18	613 135 7532	ASSY,RACK,LOAD
MB-16	613 094 9240	COMPL,SLIDE,CAM	MC-19	411 109 1803	WASHER Y 2.6X6X0.5
MB-17	613 022 1575	SPRING,LINK LOCK	MC-20	613 135 7648	SPACER,RACK LOAD
MB-18	613 022 2725	DAMPER	MC-22	411 047 6809	SCR PAN+FLG 3X4
MB-19	613 022 2534	GEAR,FRONT LOAD	MC-23	613 021 9763	ASSY,EARTH,CYL
MB-20	613 094 1206	ASSY,LEVER,FRONT	MC-24	613 135 7662	GEAR,LOAD TAKE UP
MB-21	613 134 2910	GEAR,HELICAL FRONT	MC-25	613 022 1551	SPRING,GEAR LOAD T
MB-22	411 046 8002	SCR PAN+SW+W 2.6X6	MC-26	613 021 9879	ASSY,LEVER,LOAD T
MB-23	411 023 2801	SCR S-TPG PAN 2.6X6	MC-27	613 090 6373	GEAR,LOAD S
MB-24	411 023 3303	SCR S-TPG PAN 2.6X8	MC-28	613 022 1704	SPRING,GEAR LOAD S
OR	411 021 3107	SCR S-TPG BIN 2.6X8	MC-29	613 021 9862	ASSY,LEVER,LOAD S
MB-28	613 077 3227	HOLDER,WORM	MC-30	613 022 2039	LEVER,RETURN TENSION
MB-29	613 027 0382	WASHER	MC-31	613 091 3104	ASSY,LEVER CONTROL
MB-30	613 078 8320	ASSY,WORM,FRONT	MC-34	411 028 6309	SCR S-TPG PAN 2.6X6
MB-31	613 117 0599	BRACKET,HOLDER	MC-35	412 015 8603	SPECIAL WASHER 3.1X6X0.25
MB-32	613 093 9159	PLATE,NUT	MC-36	613 130 9890	ASSY,GEAR,FRICTION
MB-33	613 093 8374	DAMPER,MOTOR	MC-37	412 045 4606	SPECIAL WASHER 2.4X6X0.25
MB-34	613 077 3616	DAMPER,WORM	MC-38	411 092 0906	WASHER Z 2.6X10X0.5
MB-35	613 121 9960	ASSY,LOADING MOTOR	MC-40	411 100 0300	SCR S-TPG BIN 2.6X5
MB-36	613 092 9945	DAMPER,MOTOR	MC-41	613 120 9060	COMPL,MC-1
MB-37	613 132 8075	COMPL PCB,MC-3			
MB-38	613 153 5107	COMPL PWB,MC-2			
MB-39	613 110 0374	ROTARY SWITCH			
MB-40	411 126 5303	SCR PAN 2.6X13			
MB-41	613 092 9921	ASSY,SLIDE,FRONT			
MB-42	613 092 5985	SPRING,LEVER LOAD			
MB-43	613 092 5992	SPRING,LEVER ACT			
MB-44	613 092 5886	HOLDER,WORM			
OR	613 138 8628	HOLDER,WORM			
MB-45	613 027 0627	WASHER 2.1X6X0.5			
MB-46	613 092 9938	ASSY,WORM,LOAD			
MB-47	613 022 2985	BELT,LOADING			
MB-48	412 033 4106	WASHER SLIT 2.6X5X0.50			
MB-49	613 077 3579	GEAR,HELICAL			
MB-50	613 102 9293	ASSY,LEVER,REV GUIDE			
MB-51	613 022 1568	SPRING,REVIEW LEVER			
MB-52	613 022 0158	COMPL,PINCH ROLLER			
MB-53	613 147 9951	SPRING,PINCH ROLLER			

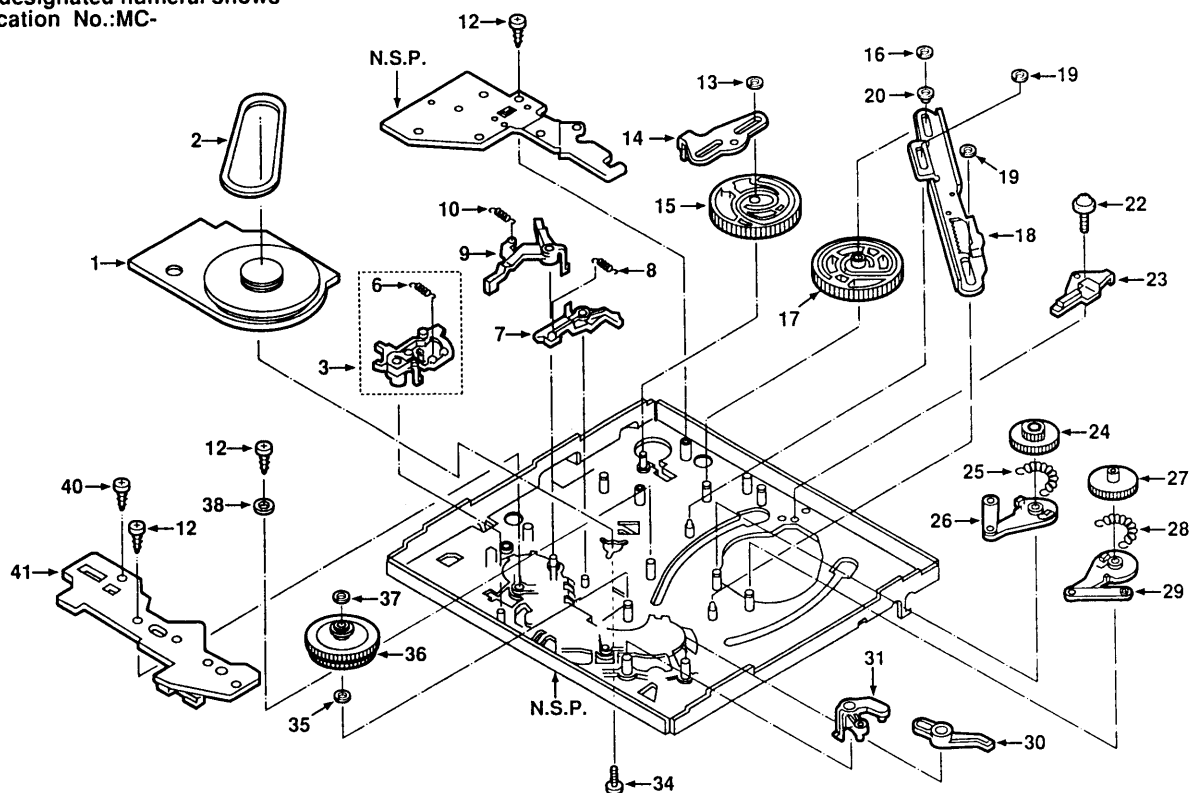
MECHANISM PARTS 2

Undesignated numeral shows
Location No.:MB-



MECHANISM PARTS 3

Undesignated numeral shows
Location No.:MC-



N.S.P.:Not available as service parts

ELECTRICAL PARTS

NOTE;

1. Materials of Capacitors and Resistors are abbreviated as follows;

Resistors

MT-FILM	Metallized Film Resistor
MT-GLAZE	Metallized Glaze Resistor
OXIDE-MT	Oxide Metallized Film Resistor

TA-SOLID

AL-SOLID

NP-ELECT

OS-SOLID

DL-ELECT

Tantalum Solid Capacitor

Aluminum Solid Capacitor

Non-Polarized Electrolytic Capacitor

Aluminum Solid Capacitors with Organic Semiconductive

Electrolytic Capacitor

Double Layered Electrolytic Capacitor

Capacitors

MT-POLYEST	Metallized Polyester Capacitor
MT-COMPO	Metallized Composite Capacitor

2. Tolerance of Capacitor(10pF over) and Resistor are noted with follow symbols.

F ±1%	G ±2%	J ±5%	K ±10%
M ±20%	N ±30%	Z +80% ~ -20%	

3. Capacitors

U : uF P : pF

4. Inductors

UH : uH MH : mH

5. N.S.P. : Not available as service parts.

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
COMPL PWB,CP-1-A			Q1621	405 093 0607	TR KSC2785-Y
COMPL.NO 613 153 4001		(VHR-474E)	Q1622	405 057 6201	TR 2SC4038-Q
COMPL.NO 613 154 1986		(VHR-474G)	OR	405 057 6409	TR 2SC4038-R
(SEMICONDUCTORS)			OR	405 123 7002	TR 2SD1991A-Q
Q1002	405 057 6201	TR 2SC4038-Q	OR	405 123 7101	TR 2SD1991A-R
OR	405 057 6409	TR 2SC4038-R	Q1623	405 064 0100	TR 2SA1561-Q
OR	405 123 7002	TR 2SD1991A-Q	OR	405 064 0209	TR 2SA1561-R
OR	405 123 7101	TR 2SD1991A-R	OR	405 123 6708	TR 2SB1320A-Q
Q1003	405 064 0100	TR 2SA1561-Q	OR	405 123 6807	TR 2SB1320A-R
OR	405 064 0209	TR 2SA1561-R	Q1653	405 057 6201	TR 2SC4038-Q
OR	405 123 6708	TR 2SB1320A-Q	OR	405 057 6409	TR 2SC4038-R
OR	405 123 6807	TR 2SB1320A-R	OR	405 123 7002	TR 2SD1991A-Q
Q1004	405 064 0100	TR 2SA1561-Q	OR	405 123 7101	TR 2SD1991A-R
OR	405 064 0209	TR 2SA1561-R	Q1654	405 064 0100	TR 2SA1561-Q
OR	405 123 6708	TR 2SB1320A-Q	OR	405 064 0209	TR 2SA1561-R
OR	405 123 6807	TR 2SB1320A-R	OR	405 123 6708	TR 2SB1320A-Q
Q1006	405 057 6201	TR 2SC4038-Q	OR	405 123 6807	TR 2SB1320A-R
OR	405 057 6409	TR 2SC4038-R	Q2001	405 018 0002	TR 2SC3331-S
OR	405 123 7002	TR 2SD1991A-Q	OR	405 018 0101	TR 2SC3331-T
OR	405 123 7101	TR 2SD1991A-R	OR	405 018 0200	TR 2SC3331-U
Q1011	405 063 9708	TR DTC144EL	Q2002	405 063 9708	TR DTC144EL
OR	405 123 6500	TR UN6213	OR	405 123 6500	TR UN6213
Q1012	405 057 6201	TR 2SC4038-Q	Q2003	405 003 7702	TR 2SA1346
OR	405 057 6409	TR 2SC4038-R	OR	405 000 1208	TR DTA124ES
OR	405 123 7002	TR 2SD1991A-Q	Q3503	405 063 9708	TR DTC144EL
OR	405 123 7101	TR 2SD1991A-R	OR	405 123 6500	TR UN6213
Q1151	405 063 9906	TR DTC124EL	Q3504	405 063 9708	TR DTC144EL
OR	405 123 6401	TR UN6212	OR	405 123 6500	TR UN6213
Q1152	405 063 9609	TR DTA114EL	Q3551	405 057 6201	TR 2SC4038-Q
OR	405 124 2709	TR UN6111	OR	405 057 6409	TR 2SC4038-R
Q1301	405 063 9104	TR DTA144EL	OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 6609	TR UN6113	OR	405 123 7101	TR 2SD1991A-R
Q1312	405 057 6201	TR 2SC4038-Q	Q3552	405 057 6201	TR 2SC4038-Q
OR	405 057 6409	TR 2SC4038-R	OR	405 057 6409	TR 2SC4038-R
OR	405 123 7002	TR 2SD1991A-Q	OR	405 123 7002	TR 2SD1991A-Q
OR	405 123 7101	TR 2SD1991A-R	OR	405 123 7101	TR 2SD1991A-R
Q1313	405 063 9708	TR DTC144EL	Q3553	405 057 6201	TR 2SC4038-Q
OR	405 123 6500	TR UN6213	OR	405 057 6409	TR 2SC4038-R
Q1601	405 004 4601	TR 2SA608-F-SPA	OR	405 123 7002	TR 2SD1991A-Q
OR	405 006 1806	TR 2SA933S-R	OR	405 123 7101	TR 2SD1991A-R
Q1621	405 019 2005	TR 2SC536-E-SPA	Q5001	405 094 6905	TR 2SK1460
OR	405 019 2807	TR 2SC536-F-SPA	OR	405 126 0208	TR 2SK1460LS
OR	405 011 8401	TR 2SC1740S-Q			
OR	405 011 8500	TR 2SC1740S-R			

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
Q5002	405 013 7006	TR 2SC2274-F	IC351	409 323 3109	IC BU2896K
OR	405 013 7303	TR 2SC2274K-F			
Q5003	405 006 6702	TR 2SA984-F	IC511	409 067 7203	IC L5431
Q5004	405 013 7006	TR 2SC2274-F	IC512	409 225 2309	IC PQ12RF11
OR	405 013 7303	TR 2SC2274K-F			
Q5101	405 013 7006	TR 2SC2274-F	IC602	409 283 6202	IC LE24C02S1(VHR-474E ONLY)
OR	405 013 7303	TR 2SC2274K-F	OR	409 247 7702	IC ST24C02AB1(VHR-474E ONLY)
Q5102	405 013 7006	TR 2SC2274-F	OR	410 172 6807	IC X24C02P-C7189(VHR-474E ONLY)
OR	405 013 7303	TR 2SC2274K-F	OR	410 177 3702	IC AT24C04-10PC(VHR-474G ONLY)
Q5103	405 003 7603	TR 2SA1345	OR	409 283 6905	IC LE24C04S1(VHR-474G ONLY)
OR	405 000 2205	TR DTA144ES	OR	410 172 6906	IC X24C04P-C7346(VHR-474G ONLY)
Q5104	405 018 2501	TR 2SC3399	IC692	409 026 8203	IC L5631(VHR-474E ONLY)
OR	405 000 6104	TR DTC144ES	OR	409 057 5103	IC UPC574J(VHR-474E ONLY)
Q6001	405 073 6407	TR 2SK772-E(VHR-474E ONLY)	(DIODES)		
OR	405 073 6506	TR 2SK772-F(VHR-474E ONLY)	D1003	407 007 9904	DIODE GMA01
OR	405 026 9004	TR 2SK222-D(VHR-474E ONLY)	OR	407 012 4406	DIODE 1SS133
OR	405 026 9103	TR 2SK222-E(VHR-474E ONLY)	D1004	407 007 9904	DIODE GMA01
OR	405 114 7806	TR 2SK1104-P(VHR-474E ONLY)	OR	407 012 4406	DIODE 1SS133
OR	405 114 7905	TR 2SK1104-Q(VHR-474E ONLY)	D1008	407 007 9904	DIODE GMA01
OR	405 114 8001	TR 2SK1104-R(VHR-474E ONLY)	OR	407 012 4406	DIODE 1SS133
Q6002	405 018 2501	TR 2SC3399(VHR-474E ONLY)	D1009	407 007 9904	DIODE GMA01
OR	405 000 6104	TR DTC144ES(VHR-474E ONLY)	OR	407 012 4406	DIODE 1SS133
Q6051	405 004 4007	TR 2SA608-E-SPA	D1301	407 007 9904	DIODE GMA01
OR	405 006 1707	TR 2SA933S-Q	OR	407 012 4406	DIODE 1SS133
OR	405 093 0508	TR KSA1175-Y	D1601	407 007 9904	DIODE GMA01
OR	405 004 4601	TR 2SA608-F-SPA	OR	407 012 4406	DIODE 1SS133
OR	405 006 1806	TR 2SA933S-R	D1602	407 007 9904	DIODE GMA01
Q6052	405 057 6201	TR 2SC4038-Q	OR	407 012 4406	DIODE 1SS133
OR	405 057 6409	TR 2SC4038-R	D1611	407 070 7104	ZENER DIODE 6ZSS.6X
OR	405 123 7002	TR 2SD1991A-Q	OR	407 053 6704	ZENER DIODE MTZ5.6B
OR	405 123 7101	TR 2SD1991A-R	D1621	407 007 9904	DIODE GMA01
Q6901	405 019 2005	TR 2SC536-E-SPA	OR	407 012 4406	DIODE 1SS133
OR	405 011 8401	TR 2SC1740S-Q	D1622	407 007 9904	DIODE GMA01
OR	405 093 0607	TR KSC2785-Y	OR	407 012 4406	DIODE 1SS133
OR	405 019 2807	TR 2SC536-F-SPA	D1671	407 007 9904	DIODE GMA01
OR	405 011 8500	TR 2SC1740S-R	OR	407 012 4406	DIODE 1SS133
Q6902	405 004 4007	TR 2SA608-E-SPA			
OR	405 006 1707	TR 2SA933S-Q	D3001	407 012 4406	DIODE 1SS133
OR	405 093 0508	TR KSA1175-Y	OR	407 007 9904	DIODE GMA01
OR	405 004 4601	TR 2SA608-F-SPA	D3101	407 012 4406	DIODE 1SS133(VHR-474G ONLY)
OR	405 006 1806	TR 2SA933S-R	OR	407 007 9904	DIODE GMA01(VHR-474G ONLY)
Q6903	405 019 2005	TR 2SC536-E-SPA	D3102	407 012 4406	DIODE 1SS133(VHR-474E ONLY)
OR	405 011 8401	TR 2SC1740S-Q	OR	407 007 9904	DIODE GMA01(VHR-474E ONLY)
OR	405 093 0607	TR KSC2785-Y	D3106	407 012 4406	DIODE 1SS133
OR	405 019 2807	TR 2SC536-F-SPA	OR	407 007 9904	DIODE GMA01
OR	405 011 8500	TR 2SC1740S-R	D3107	407 012 4406	DIODE 1SS133
Q6904	405 018 2501	TR 2SC3399	OR	407 007 9904	DIODE GMA01
OR	405 000 6104	TR DTC144ES	D3113	407 012 4406	DIODE 1SS133
Q6921	405 084 8209	TR 2SC2960-F-SPA(VHR-474E ONLY)	OR	407 007 9904	DIODE GMA01
OR	405 084 8308	TR 2SC2960-G-SPA(VHR-474E ONLY)	D3121	407 012 4406	DIODE 1SS133
			OR	407 007 9904	DIODE GMA01
(INTEGRATED CIRCUITS)			D3122	407 012 4406	DIODE 1SS133
IC101	409 326 0204	IC LA7345AM	OR	407 007 9904	DIODE GMA01
OR	409 333 9900	IC LA7345AM-MPS	D3123	407 012 4406	DIODE 1SS133
IC111	409 297 6205	IC LC89925	OR	407 007 9904	DIODE GMA01
IC161	409 003 4501	IC BA7021			
OR	409 120 3401	IC LA7221	D3502	407 007 9904	DIODE GMA01
IC162	410 174 3200	IC LC74760M-8797	OR	407 012 4406	DIODE 1SS133
			D3510	407 007 9904	DIODE GMA01
IC201	409 262 2409	IC LA7285M	OR	407 012 4406	DIODE 1SS133
			D3554	407 007 9904	DIODE GMA01
IC301	410 197 2709	IC LC866648V-5501(VHR-474E ONLY)	OR	407 012 4406	DIODE 1SS133
OR	410 199 9102	IC LC866648V-5528(VHR-474E ONLY)			
OR	410 201 3708	IC LC866648V-5537(VHR-474G ONLY)	D5001	407 134 8900	DIODE DBC106
IC302	409 314 2005	IC LB1643	D5003	407 078 2705	DIODE 1SS244
IC303	409 313 0903	IC MN1381-L	D5004	407 078 2705	DIODE 1SS244
OR	409 243 4101	IC MN1380-L	D5006	407 078 2705	DIODE 1SS244
			D5010	407 091 6704	DIODE AP01C

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
D5013 Δ	407 151 3308	PHOTO COUPLE PC120FB	L1013	613 014 4430	HF CHOKE 33UHK
D5101	407 153 5409	DIODE RK36LF-B1	L1081	613 014 0975	COIL,INDUCTOR 100UHK(VHR-474G ONLY)
D5102	407 129 2005	DIODE RL2Z-LF-B1	OR	613 014 4492	HF CHOKE 003(VHR-474G ONLY)
D5103	407 078 2705	DIODE 1SS244	L1101	613 014 1019	COIL,INDUCTOR 220UHK
D5104	407 078 2705	DIODE 1SS244	OR	613 014 4539	HF CHOKE 220UHK
D5105	407 100 6909	DIODE AG01	L1622	613 014 0821	COIL,INDUCTOR 5.6UHK
D5108	407 063 8903	ZENER DIODE MTZJ5.6C	OR	613 014 4348	HF CHOKE 5.6UHK
D5109	407 063 8903	ZENER DIODE MTZJ5.6C	L2002	613 014 3532	HF CHOKE 10000UHK
D5110	407 004 9709	DIODE DSK10C	L2003	613 015 6297	COIL,INDUCTOR 560UHK
OR	407 005 8701	DIODE ERA15-02	L2051	613 130 3539	FERRITE CORE(VHR-474G ONLY)
D5112	407 063 8903	ZENER DIODE MTZJ5.6C	OR	613 017 0316	CORE(VHR-474G ONLY)
D6901	407 012 4406	DIODE 1SS133	L3001	645 000 4070	CORE,BEAD
OR	407 007 9904	DIODE GMA01	OR	613 017 0408	CORE
D6902	407 012 4406	DIODE 1SS133	L5001 Δ	645 002 1886	LINE FILTER
OR	407 007 9904	DIODE GMA01	L5002 Δ	645 003 3858	LINE FILTER(VHR-474G ONLY)
D6903	407 012 4406	DIODE 1SS133	L5010	613 107 6884	FERRITE CORE
OR	407 007 9904	DIODE GMA01	L5101	613 107 6884	FERRITE CORE
D6910	407 100 0006	ZENER DIODE MTZJ33C(VHR-474G ONLY)	L5102	613 107 6884	FERRITE CORE
(CRYSTAL DEVICES)			L6008	613 014 0852	COIL,INDUCTOR 10UHK
X1001	645 000 6012	OSC,CRYSTAL 4.433619MHZ	OR	613 014 4379	HF CHOKE 10UHK
OR	645 000 6029	OSC,CRYSTAL 4.433619MHZ	L6009	613 015 6082	COIL,INDUCTOR 10UHK
OR	645 002 4436	OSC,CRYSTAL 4.433619MHZ	L6051	613 014 0975	COIL,INDUCTOR 100UHK
X1621	613 002 8709	CRYSTAL 17.734475MHZ	OR	613 014 4492	HF CHOKE
OR	613 127 1555	OSC,CRYSTAL 17.734475MHZ	L6602	613 014 0852	COIL,INDUCTOR 10UHK
X3001	645 003 5852	OSC,CERAMIC 13.31MHZ	OR	613 014 4379	HF CHOKE 10UHK
OR	645 003 4510	OSC,CERAMIC 13.31MHZ	L6604	613 014 0739	COIL,INDUCTOR 1.0UHK
X3002	613 109 0972	OSC,CRYSTAL 32KHZ	OR	613 014 4256	HF CHOKE 1.0UHM
OR	613 123 6387	OSC,CRYSTAL 32.768KHZ	(TRANSFORMERS)		
(VARIABLE RESISTORS)			T2001	613 098 6023	TRANS,OSC 70KHZ
VR101	613 120 8438	VR,SEMI 22KB	OR	621 019 9596	70KHZ OSC TRANS
OR	613 120 8582	VR,SEMI 22KB	OR	645 004 7480	TRANS,OSC,70KHZ
VR102	613 120 8421	VR,SEMI 2.2KB	T5001 Δ	645 004 2164	TRANS,POWER,PULSE
OR	613 120 8575	VR,SEMI 2.2KB	T6901	613 109 0958	TRANS,IF(VHR-474G ONLY)
VR103	613 147 7216	VR,SEMI 6.8KB	OR	613 109 0965	TRANS,IF(VHR-474G ONLY)
OR	613 147 7223	VR,SEMI 6.8KB	OR	645 002 9356	TRANS,IF 15.625KHZ(VHR-474G ONLY)
VR104	613 079 2532	VR,SEMI 10KB	(DELAY LINES)		
OR	613 120 8544	VR,SEMI 10KB	DL101	645 000 5992	DELAY LINE(COMB)
VR201	613 097 7915	VR,SEMI 100KB	OR	645 000 6005	DELAY LINE(COMB)
OR	613 001 9097	SEMI VR 100KB	(CAPACITORS)		
VR351	613 097 7953	VR,SEMI 220KB	C1001	403 024 1501	CERAMIC 39P J 50V
OR	613 001 9110	SEMI VR 220KB	OR	403 017 9705	(VHR-474E ONLY)
(TRIMMER)					CERAMIC 22P J 50V
CT120	613 002 6378	TRIMMER			(VHR-474G ONLY)
(INDUCTORS)			C1002	403 071 5408	CERAMIC 220P J 50V
L1002	613 014 0739	COIL,INDUCTOR 1.0UHK(VHR-474G ONLY)	C1003	403 075 3103	CERAMIC 82P J 50V
OR	613 014 4256	HF CHOKE 1.0UHM(VHR-474G ONLY)	C1005	403 139 2707	ELECT 1U M 50V
L1004	613 014 0999	COIL,INDUCTOR 150UHK	C1006	403 025 7304	CERAMIC 4.7P K 50V
OR	613 014 4515	HF CHOKE 150UHK	C1007	403 073 2702	CERAMIC 390P J 50V
L1005	613 014 0999	COIL,INDUCTOR 150UHK	C1008	403 017 9705	CERAMIC 22P J 50V
OR	613 014 4515	HF CHOKE 150UHK	C1009	403 025 7304	CERAMIC 4.7P K 50V
L1007	613 014 0883	COIL,INDUCTOR 18UHK	C1010	403 075 3103	CERAMIC 82P J 50V
OR	613 014 4409	HF CHOKE 18UHK	C1011	403 139 2707	ELECT 1U M 50V
L1008	613 014 0876	COIL,INDUCTOR 15UHK	C1012	403 139 1502	ELECT 10U M 16V
OR	613 014 4393	HF CHOKE 15UHK	C1013	403 139 2608	ELECT 0.47U M 50V
L1009	613 014 0777	COIL,INDUCTOR 2.2UHK	C1014	403 001 1906	CERAMIC 0.01U M 16V
OR	613 014 4294	HF CHOKE 2.2UHM	C1015	403 120 9203	CERAMIC 0.033U J 16V
L1010	613 014 0906	COIL,INDUCTOR 27UHK	C1016	403 120 9005	CERAMIC 0.022U J 16V
OR	613 014 4423	HF CHOKE 27UHK	C1021	403 073 2702	CERAMIC 390P J 50V
L1012	613 014 1156	COIL,INDUCTOR 39UHK	C1022	403 217 5507	CERAMIC 0.1U J 16V
OR	613 014 4676	HF CHOKE 39UHK	C1023	403 030 6309	CERAMIC 68P J 50V
L1013	613 014 0913	COIL,INDUCTOR 33UHK			

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
C1028	403 001 1906	CERAMIC 0.01U M 16V	C2017	403 139 1502	ELECT 10U M 16V
C1030	403 191 8709	ELECT 1U M 50V	C2019	403 163 8409	ELECT 47U M 16V
C1031	403 191 8709	ELECT 1U M 50V	C2020	403 071 6207	CERAMIC 220P K 50V
C1032	403 120 9609	CERAMIC 0.047U J 16V	C2021	403 082 4209	POLYPRO 6800P J 100V
C1033	403 001 1906	CERAMIC 0.01U M 16V	C2022	403 001 1906	CERAMIC 0.01U M 16V
C1036	403 191 8709	ELECT 1U M 50V	C2024	403 001 1906	CERAMIC 0.01U M 16V
C1037	403 191 8808	ELECT 2.2U M 50V	C2051	403 070 4105	CERAMIC 120P K 50V (VHR-474G ONLY)
C1038	403 120 9005	CERAMIC 0.022U J 16V	C2054	403 121 9509	CERAMIC 0.1U Z 50V
C1039	403 120 9609	CERAMIC 0.047U J 16V	C2071	403 001 3306	CERAMIC 1200P M 16V
C1040	403 001 1906	CERAMIC 0.01U M 16V	C2072	403 139 2905	ELECT 2.2U M 50V
C1041	403 189 2405	ELECT 10U M 16V	C2073	403 003 4707	CERAMIC 0.027U J 25V
C1043	403 222 1105	CERAMIC 0.047U Z 16V	C2091	403 121 9509	CERAMIC 0.1U Z 50V
C1044	403 163 7907	ELECT 47U M 6.3V	C2092	403 001 5102	CERAMIC 2200P M 16V
C1046	403 139 1502	ELECT 10U M 16V	C2101	403 121 9509	CERAMIC 0.1U Z 50V
C1047	403 139 1502	ELECT 10U M 16V	C2102	403 121 9509	CERAMIC 0.1U Z 50V
C1048	403 001 1906	CERAMIC 0.01U M 16V	C2152	403 069 1207	CERAMIC 1000P K 50V
C1049	403 022 7703	CERAMIC 33P J 50V	C2153	403 001 8905	CERAMIC 6800P M 16V
C1050	403 001 1906	CERAMIC 0.01U M 16V (VHR-474E ONLY)			
C1051	403 073 6205	CERAMIC 470P J 50V (VHR-474G ONLY)	C3001	403 009 1700	CERAMIC 10P J 50V
C1052	403 115 0901	CERAMIC 560P J 50V	C3002	403 017 0108	CERAMIC 20P J 50V
C1053	403 001 1906	CERAMIC 0.01U M 16V	C3004	403 001 1906	CERAMIC 0.01U M 16V
C1058	403 019 9703	CERAMIC 27P J 50V	C3005	403 001 1906	CERAMIC 0.01U M 16V
C1060	403 022 7703	CERAMIC 33P J 50V	C3008	403 150 6500	ELECT 22U M 16V
C1061	403 026 2209	CERAMIC 47P J 50V	C3009	403 001 1906	CERAMIC 0.01U M 16V
C1062	403 071 1509	CERAMIC 180P J 50V	C3010	403 191 8808	ELECT 2.2U M 50V
C1081	403 074 8703	CERAMIC 680P J 50V (VHR-474G ONLY)	C3011	403 121 9509	CERAMIC 0.1U Z 50V
C1091	403 121 9509	CERAMIC 0.1U Z 50V	C3012	403 001 1906	CERAMIC 0.01U M 16V
C1092	403 072 7500	CERAMIC 330P J 50V	C3013	403 001 1906	CERAMIC 0.01U M 16V
C1093	403 121 9509	CERAMIC 0.1U Z 50V	C3014	403 223 9308	ELECT 470U M 6.3V
C1094	403 121 9509	CERAMIC 0.1U Z 50V	C3016	403 001 1906	CERAMIC 0.01U M 16V
C1096	403 121 9509	CERAMIC 0.1U Z 50V	C3017	403 069 1207	CERAMIC 1000P K 50V
C1097	403 154 3307	OS-SOLID 4.7U M 10V	C3021	403 026 2209	CERAMIC 47P J 50V
C1101	403 139 1007	ELECT 47U M 6.3V	C3022	403 265 4408	DL-ELECT 0.1F Z 5.5V
C1102	403 001 1906	CERAMIC 0.01U M 16V	C3023	403 010 7708	CERAMIC 12P J 50V
C1105	403 010 7807	CERAMIC 12P J 50V			
C1109	403 001 1906	CERAMIC 0.01U M 16V	C3501	403 129 9709	CERAMIC 0.015U K 16V
C1110	403 139 2707	ELECT 1U M 50V	C3502	403 001 8806	CERAMIC 6800P K 16V
C1131	403 121 9509	CERAMIC 0.1U Z 50V	C3503	403 129 9709	CERAMIC 0.015U K 16V
C1601	403 121 9509	CERAMIC 0.1U Z 50V	C3505	403 150 6500	ELECT 22U M 16V
C1602	403 223 9308	ELECT 470U M 6.3V	C3506	403 001 8806	CERAMIC 6800P K 16V
C1611	403 193 8608	ELECT 0.47U M 50V	C3508	403 150 6500	ELECT 22U M 16V
C1612	403 026 2209	CERAMIC 47P J 50V (VHR-474G ONLY)	C3509	403 163 7907	ELECT 47U M 6.3V
C1613	403 222 1105	CERAMIC 0.047U Z 16V	C3511	403 071 6207	CERAMIC 220P K 50V
C1614	403 139 1502	ELECT 10U M 16V	C3512	403 270 2307	MT-COMPO 0.039U J 50V
C1621	403 012 6006	CERAMIC 15P J 50V	C3513	403 119 6701	CERAMIC 0.068U K 16V
C1622	403 012 6006	CERAMIC 15P J 50V	C3514	403 058 5308	POLYESTER 0.15U K 50V
C1623	403 163 7907	ELECT 47U M 6.3V	C3515	403 059 6007	POLYESTER 0.022U K 50V
C1624	403 167 6609	ELECT 47U M 10V	C3516	403 001 5003	CERAMIC 2200P K 16V
C1625	403 189 2405	ELECT 10U M 16V	C3517	403 001 3801	CERAMIC 1500P K 16V
C1627	403 213 0605	CERAMIC 1200P K 16V	C3522	403 069 1207	CERAMIC 1000P K 50V
C1628	403 191 8709	ELECT 1U M 50V	C3523	403 191 8709	ELECT 1U M 50V
C1630	403 119 7104	CERAMIC 6800P K 16V	C3524	403 001 1906	CERAMIC 0.01U M 16V
C1631	403 086 2805	NP-ELECT 1U M 50V	C3525	403 193 8608	ELECT 0.47U M 50V
C1632	403 138 2500	CERAMIC 0.022U K 16V	C3526	403 184 9607	MT-POLYEST 0.082U J 50V
C1633	403 019 0403	CERAMIC 24P J 50V	C3530	403 163 7907	ELECT 47U M 6.3V
C1634	403 009 1809	CERAMIC 10P J 50V	C3536	403 193 7601	ELECT 220U M 6.3V
C1636	403 001 1906	CERAMIC 0.01U M 16V	C3540	403 068 9402	CERAMIC 100P K 50V
C2002	403 075 4001	CERAMIC 820P J 50V	C3551	403 263 5605	MT-COMPO 0.12U J 50V
C2004	403 139 0901	ELECT 33U M 6.3V	C3552	403 028 3402	CERAMIC 56P J 50V
C2005	403 150 0201	CERAMIC 0.018U K 16V	C3553	403 191 8709	ELECT 1U M 50V
C2009	403 139 1205	ELECT 22U M 10V	C3554	403 070 7205	CERAMIC 150P J 50V
C2010	403 139 1007	ELECT 47U M 6.3V	C3556	403 069 1207	CERAMIC 1000P K 50V
C2013	403 002 8201	CERAMIC 0.015U J 25V	C3558	403 149 0700	ELECT 33U M 16V
C2016	403 139 2202	ELECT 4.7U M 25V	C3570	403 121 9509	CERAMIC 0.1U Z 50V
			C5001	404 055 5001	MT-POLYEST 0.22U M 250V
			C5002	404 055 4905	MT-POLYEST 0.068U M 250V
			C5005	404 032 8506	CERAMIC 1000P M 400V

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
C5007 Δ	404 032 8506	CERAMIC 1000P M 400V	R1003	401 019 1802	CARBON 3.9K JA 1/4W
C5010	403 249 0204	ELECT 47U M 400V	R1004	401 012 5609	CARBON 1K JA 1/4W
C5011	403 057 2902	POLYESTER 0.1U K 50V	R1005	401 017 0708	CARBON 270 JA 1/4W
C5015	403 060 6201	POLYESTER 3300P K 50V	R1006	401 023 1607	CARBON 820 JA 1/4W
C5017	403 072 7500	CERAMIC 330P J 50V	R1007	401 012 5609	CARBON 1K JA 1/4W
C5020	403 255 8409	CERAMIC 39P J 1K	R1008	401 017 1705	CARBON 2.7K JA 1/4W
C5021	403 076 0507	CERAMIC 2200P K 500V	R1009	401 022 1806	CARBON 680 JA 1/4W
C5022	403 076 0507	CERAMIC 2200P K 500V	R1010	401 016 3700	CARBON 2.2K JA 1/4W
C5023	403 026 2209	CERAMIC 47P J 50V	R1012	401 012 5609	CARBON 1K JA 1/4W
C5025	403 137 5007	CERAMIC 100P K 1K	R1013	401 012 5609	CARBON 1K JA 1/4W
C5101	403 243 8107	ELECT 1000U M 6.3V	R1014	401 016 3700	CARBON 2.2K JA 1/4W
C5102	403 147 9200	ELECT 1000U M 6.3V	R1019	401 016 4707	CARBON 22K JA 1/4W
C5105	403 207 5005	ELECT 470U M 16V	R1020	401 013 6308	CARBON 12K JA 1/4W
C5106	403 218 3106	ELECT 1000U M 16V	R1021	401 012 5609	CARBON 1K JA 1/4W
C5108	403 209 4709	ELECT 22U M 50V	R1022	401 019 0904	CARBON 390 JA 1/4W
C5109	403 228 9600	ELECT 47U M 35V	R1024	401 022 1806	CARBON 680 JA 1/4W
C5110	403 243 7803	ELECT 220U M 6.3V	R1026	401 012 9201	CARBON 1M JA 1/4W
C5113	403 201 5001	ELECT 330U M 16V	R1027	401 023 2703	CARBON 8.2K JA 1/4W
C5115	403 121 9509	CERAMIC 0.1U Z 50V	R1028	401 015 2605	CARBON 1.8K JA 1/4W
C5116	403 248 3107	ELECT 3.3U M 50V	R1029	401 012 5609	CARBON 1K JA 1/4W
C5124	403 258 3807	ELECT 0.22U M 50V	R1032	401 016 4707	CARBON 22K JA 1/4W
C5135	403 057 2902	POLYESTER 0.1U K 50V	R1033	401 012 5609	CARBON 1K JA 1/4W
C6004	403 243 6806	MT-COMPO 0.1U J 50V (VHR-474E ONLY)	R1035	401 020 0702	CARBON 470 JA 1/4W
C6005	403 121 9509	CERAMIC 0.1U Z 50V (VHR-474E ONLY)	R1036	401 014 4006	CARBON 1.5K JA 1/4W
C6006	403 222 1105	CERAMIC 0.047U Z 16V (VHR-474E ONLY)	R1038	401 012 5609	CARBON 1K JA 1/4W
C6007	403 189 2405	ELECT 10U M 16V	R1040	401 014 2804	CARBON 150 JA 1/4W
C6008	403 228 6401	CERAMIC 0.033U Z 16V	R1043	401 016 3700	CARBON 2.2K JA 1/4W
C6009	403 248 1608	ELECT 47U M 16V	R1044	401 013 6308	CARBON 12K JA 1/4W
C6010	403 001 5102	CERAMIC 2200P M 16V	R1046	401 018 4804	CARBON 33K JA 1/4W
C6052	403 024 1501	CERAMIC 39P J 50V	R1047	401 023 2703	CARBON 8.2K JA 1/4W
C6053	403 022 7703	CERAMIC 33P J 50V	R1048	401 020 1907	CARBON 4.7K JA 1/4W
C6601	403 248 1905	ELECT 10U M 16V	R1049	401 013 6308	CARBON 12K JA 1/4W
C6602	403 248 1905	ELECT 10U M 16V	R1052	401 012 5609	CARBON 1K JA 1/4W
C6901	403 248 1400	ELECT 1U M 50V (VHR-474E ONLY)	R1053	401 018 2701	CARBON 330 JA 1/4W
C6902	403 222 1105	CERAMIC 0.047U Z 16V (VHR-474G ONLY)	R1054	401 018 3708	CARBON 3.3K JA 1/4W
C6903	403 001 1906	CERAMIC 0.01U M 16V (VHR-474E ONLY)	R1059	401 015 2605	CARBON 1.8K JA 1/4W
C6904	403 248 1905	ELECT 10U M 16V (VHR-474G ONLY)	R1063	401 016 4707	CARBON 22K JA 1/4W
C6905	403 017 9705	CERAMIC 22P J 50V (VHR-474E ONLY)	R1071	401 017 1705	CARBON 2.7K JA 1/4W
C6906	403 003 3700	CERAMIC 0.022U Z 25V (VHR-474G ONLY)	R1072	401 015 2605	CARBON 1.8K JA 1/4W
C6907	403 248 1400	ELECT 1U M 50V (VHR-474E ONLY)	R1105	401 019 1802	CARBON 3.9K JA 1/4W
OR	403 258 3807	ELECT 0.22U M 50V (VHR-474G ONLY)	R1106	401 022 3008	CARBON 6.8K JA 1/4W
C6908	403 121 9509	CERAMIC 0.1U Z 50V (VHR-474G ONLY)	R1601	401 021 1807	CARBON 560 JA 1/4W
C6909	403 233 0302	ELECT 100U M 16V	R1602	401 022 6702	CARBON 75 JA 1/4W
C6910	403 069 1207	CERAMIC 1000P K 50V (VHR-474E ONLY)	R1603	401 015 0403	CARBON 18 JA 1/4W
C6922	403 233 1101	ELECT 22U M 50V	R1611	401 012 5609	CARBON 1K JA 1/4W
C6924	403 071 2001	CERAMIC 180P K 50V (VHR-474E ONLY)	R1614	401 012 5609	CARBON 1K JA 1/4W
C6925	403 256 4608	MT-COMPO 0.33U J 50V (VHR-474E ONLY)	R1615	401 022 6702	CARBON 75 JA 1/4W
C6926	403 263 5704	MT-COMPO 0.22U J 50V (VHR-474E ONLY)	R1616	401 018 2701	CARBON 330 JA 1/4W
(RESISTORS)			R1617	401 019 0904	CARBON 390 JA 1/4W
R1001	401 018 3708	CARBON 3.3K JA 1/4W	R1621	401 016 4707	CARBON 22K JA 1/4W
R1002	401 013 5202	CARBON 1.2K JA 1/4W	R1622	401 019 7705	CARBON 4.3K JA 1/4W
			R1623	401 014 4006	CARBON 1.5K JA 1/4W
			R1624	401 012 6903	CARBON 10K JA 1/4W
			R1625	401 022 3008	CARBON 6.8K JA 1/4W
			R1626	401 012 8006	CARBON 100K JA 1/4W
			R1627	401 016 2505	CARBON 220 JA 1/4W
			R1628	401 012 4404	CARBON 100 JA 1/4W
			R1629	401 016 2505	CARBON 220 JA 1/4W
			R1630	401 014 4006	CARBON 1.5K JA 1/4W
			R1631	401 022 3008	CARBON 6.8K JA 1/4W
			R1632	401 012 5609	CARBON 1K JA 1/4W
			R1633	401 012 5609	CARBON 1K JA 1/4W
			R1651	401 023 2703	CARBON 8.2K JA 1/4W
			R1652	401 013 6308	CARBON 12K JA 1/4W
			R1653	401 021 0602	CARBON 56 JA 1/4W
			R1656	401 012 6903	CARBON 10K JA 1/4W
			R1657	401 021 2903	CARBON 5.6K JA 1/4W
			R1658	401 021 2903	CARBON 5.6K JA 1/4W
			R1659	401 012 6903	CARBON 10K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
R1671	401 012 4404	CARBON 100 JA 1/4W	R3501	401 012 8006	CARBON 100K JA 1/4W
R1673	401 020 1907	CARBON 4.7K JA 1/4W	R3502	401 012 8006	CARBON 100K JA 1/4W
R2001	401 012 4404	CARBON 100 JA 1/4W	R3503	401 018 5702	CARBON 330K JA 1/4W
R2002	401 017 1705	CARBON 2.7K JA 1/4W	R3504	401 014 6000	CARBON 150K JA 1/4W
R2003	401 020 7404	CARBON 51 JA 1/4W	R3505	401 014 5102	CARBON 15K JA 1/4W
R2004	401 019 3905	CARBON 390K JA 1/4W	R3506	401 016 5704	CARBON 220K JA 1/4W
R2005	401 021 8905	CARBON 6.2K JA 1/4W	R3507	401 014 6000	CARBON 150K JA 1/4W
R2009	401 012 9201	CARBON 1M JA 1/4W	R3508	401 017 2702	CARBON 27K JA 1/4W
R2010	401 012 6903	CARBON 10K JA 1/4W	R3516	401 023 7401	CARBON 9.1K JA 1/4W
R2011	401 014 5102	CARBON 15K JA 1/4W	R3517	401 020 2805	CARBON 47K JA 1/4W
R2012	401 018 4804	CARBON 33K JA 1/4W	R3518	401 020 2805	CARBON 47K JA 1/4W
R2013	401 022 3008	CARBON 6.8K JA 1/4W	R3520	401 019 3905	CARBON 390K JA 1/4W
R2014	401 013 5202	CARBON 1.2K JA 1/4W	R3521	401 012 6903	CARBON 10K JA 1/4W
R2018	401 016 4707	CARBON 22K JA 1/4W	R3525	401 012 5609	CARBON 1K JA 1/4W
R2021	401 018 1506	CARBON 33 JA 1/4W	R3526	401 016 3700	CARBON 2.2K JA 1/4W
R2022	401 019 9501	CARBON 47 JA 1/4W	R3527	401 012 5609	CARBON 1K JA 1/4W
R2023	401 014 5102	CARBON 15K JA 1/4W	R3528	401 020 7800	CARBON 510 JA 1/4W
R2024	401 021 7007	CARBON 6.8 JA 1/4W	R3529	401 020 7800	CARBON 510 JA 1/4W
R2071	401 022 0700	CARBON 68 JA 1/4W	R3533	401 014 4006	CARBON 1.5K JA 1/4W
R2091	401 017 1705	CARBON 2.7K JA 1/4W	R3537	401 023 2703	CARBON 8.2K JA 1/4W
R2101	401 019 2908	CARBON 39K JA 1/4W	R3546	401 020 1907	CARBON 4.7K JA 1/4W
R2102	401 017 2702	CARBON 27K JA 1/4W	R3547	401 014 5102	CARBON 15K JA 1/4W
R2103	401 019 2908	CARBON 39K JA 1/4W	R3549	401 012 6903	CARBON 10K JA 1/4W
R2104	401 016 4707	CARBON 22K JA 1/4W	R3550	401 023 2703	CARBON 8.2K JA 1/4W
R2105	401 020 7800	CARBON 510 JA 1/4W	R3551	401 012 6903	CARBON 10K JA 1/4W
R2106	401 023 1607	CARBON 820 JA 1/4W	R3552	401 012 8006	CARBON 100K JA 1/4W
R2107	401 021 1807	CARBON 560 JA 1/4W	R3553	401 016 5704	CARBON 220K JA 1/4W
R2108	401 017 1705	CARBON 2.7K JA 1/4W	R3555	401 012 8006	CARBON 100K JA 1/4W
R2109	401 017 1705	CARBON 2.7K JA 1/4W	R3556	401 012 6903	CARBON 10K JA 1/4W
R3001 A	402 067 7402	FUSIBLE RES 3.3 JA 1/2W	R3557	401 018 5702	CARBON 330K JA 1/4W
R3004	401 014 4006	CARBON 1.5K JA 1/4W	R3558	401 020 0702	CARBON 470 JA 1/4W
R3008	401 020 1907	CARBON 4.7K JA 1/4W	R3560	401 012 5609	CARBON 1K JA 1/4W
R3009	401 020 1907	CARBON 4.7K JA 1/4W	R5001	402 013 9108	SOLID 2.7M K 1/2W
R3010	401 020 1907	CARBON 4.7K JA 1/4W	R5002	401 017 3709	CARBON 270K JA 1/4W
R3011	401 020 2805	CARBON 47K JA 1/4W	R5003	401 019 3905	CARBON 390K JA 1/4W
R3012	401 020 1907	CARBON 4.7K JA 1/4W	R5005	401 015 4609	CARBON 180K JA 1/4W
R3013	401 020 1907	CARBON 4.7K JA 1/4W	R5006	401 012 6903	CARBON 10K JA 1/4W
R3014	401 016 0402	CARBON 200K JA 1/4W	R5007	401 016 4707	CARBON 22K JA 1/4W
R3015	401 016 0402	CARBON 200K JA 1/4W	R5009	401 021 4006	CARBON 56K JA 1/4W
R3018	401 012 6903	CARBON 10K JA 1/4W	R5012	401 015 2605	CARBON 1.8K JA 1/4W
R3019	401 018 8307	CARBON 36K JA 1/4W	R5014	401 019 9501	CARBON 47 JA 1/4W
R3020	401 012 6903	CARBON 10K JA 1/4W	R5020	401 014 5102	CARBON 15K JA 1/4W
R3022	401 012 8006	CARBON 100K JA 1/4W	R5021	401 014 5102	CARBON 15K JA 1/4W
R3023	401 012 5609	CARBON 1K JA 1/4W	R5022	401 014 5102	CARBON 15K JA 1/4W
R3024	401 012 5609	CARBON 1K JA 1/4W	R5101	401 018 2701	CARBON 330 JA 1/4W
R3025	401 012 5609	CARBON 1K JA 1/4W	R5102	401 020 0702	CARBON 470 JA 1/4W
R3026	401 012 5609	CARBON 1K JA 1/4W	R5103	401 021 1807	CARBON 560 JA 1/4W
R3032	401 018 4804	CARBON 33K JA 1/4W	R5104	401 012 6903	CARBON 10K JA 1/4W
R3034	401 013 6308	CARBON 12K JA 1/4W	R5111	401 021 1807	CARBON 560 JA 1/4W
R3035	401 012 6903	CARBON 10K JA 1/4W	R5112	401 018 7904	CARBON 3.6K JA 1/4W
R3036	401 012 6903	CARBON 10K JA 1/4W	R5114	401 019 9501	CARBON 47 JA 1/4W
R3046	401 020 1907	CARBON 4.7K JA 1/4W	R5115	401 022 7105	CARBON 750 JA 1/4W
R3047	401 015 9406	CARBON 2K JA 1/4W	R5116	401 021 1807	CARBON 560 JA 1/4W
R3048	401 013 9408	CARBON 1.3K JA 1/4W	R5120	401 019 6104	CARBON 4.7 JA 1/4W
R3049	401 017 1705	CARBON 2.7K JA 1/4W	R5121	401 023 6206	CARBON 9.1 JA 1/4W
R3050	401 016 0006	CARBON 20K JA 1/4W	R5123	401 017 1705	CARBON 2.7K JA 1/4W
R3051	401 016 0006	CARBON 20K JA 1/4W	R5135	401 020 0702	CARBON 470 JA 1/4W
R3061	401 020 2805	CARBON 47K JA 1/4W	R6001	401 019 3905	CARBON 390K JA 1/4W
R3062	401 018 4804	CARBON 33K JA 1/4W	R6002	401 017 3709	CARBON 270K JA 1/4W
R3101	401 012 8006	CARBON 100K JA 1/4W	R6003	401 019 3905	CARBON 390K JA 1/4W
R3102	401 012 8006	CARBON 100K JA 1/4W			(VHR-474E ONLY)
R3103	401 012 8006	CARBON 100K JA 1/4W	R6004	401 020 3802	CARBON 470K JA 1/4W
R3104	401 012 8006	CARBON 100K JA 1/4W			(VHR-474E ONLY)
R3105	401 012 8006	CARBON 100K JA 1/4W	R6006	401 018 3708	CARBON 3.3K JA 1/4W
R3106	401 012 8006	CARBON 100K JA 1/4W	R6008	401 012 9201	CARBON 1M JA 1/4W
R3107	401 012 8006	CARBON 100K JA 1/4W			(VHR-474E ONLY)
R3108	401 012 8006	CARBON 100K JA 1/4W	R6009	401 020 1907	CARBON 4.7K JA 1/4W

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
(DIODES)					
D1801	407 007 9904	DIODE GMA01	C1812	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)
OR	407 012 4406	DIODE 1SS133	OR	403 020 0508	CERAMIC 27P J 50V (VHR-474G ONLY)
D1951	407 007 9904	DIODE GMA01(VHR-474E ONLY)	C1813	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)
OR	407 012 4406	DIODE 1SS133(VHR-474E ONLY)	OR	403 028 4201	CERAMIC 56P J 50V (VHR-474G ONLY)
(VARIABLE RESISTORS)					
VR181	613 117 1664	VR,SEMI 1KB	C1814	403 069 5601	CERAMIC 0.01U K 50V
OR	613 002 0345	SEMI VR 1KB	C1815	403 068 0409	CERAMIC 0.1U Z 25V (VHR-474E ONLY)
VR182	613 117 1718	VR,SEMI 2.2KB	OR	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
OR	613 002 0369	SEMI VR 2.2KB	C1816	403 068 0409	CERAMIC 0.1U Z 25V (VHR-474E ONLY)
(INDUCTORS)					
L1802	613 014 0951	COIL,INDUCTOR 68UH(KVHR-474G ONLY)	OR	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
OR	613 014 4478	HF CHOKE 68UH(KVHR-474G ONLY)	C1817	403 068 0409	CERAMIC 0.1U Z 25V (VHR-474E ONLY)
L1803	613 014 0968	COIL,INDUCTOR 82UH(KVHR-474G ONLY)	OR	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
OR	613 014 4485	HF CHOKE 82UH(KVHR-474G ONLY)	C1818	403 068 0409	CERAMIC 0.1U Z 25V (VHR-474E ONLY)
L1804	613 014 0890	COIL,INDUCTOR 22UH(KVHR-474G ONLY)	OR	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
OR	613 014 4416	HF CHOKE 22UH(KVHR-474G ONLY)	C1819	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
L1805	613 014 0838	COIL,INDUCTOR 6.8UH(KVHR-474G ONLY)	C1820	403 074 3104	CERAMIC 0.047U Z 50V (VHR-474G ONLY)
OR	613 014 4355	HF CHOKE 6.8UH(KVHR-474G ONLY)	C1821	403 074 3104	CERAMIC 0.047U Z 50V (VHR-474G ONLY)
L1831	613 014 0838	COIL,INDUCTOR 6.8UH(KVHR-474E ONLY)	C1822	403 074 3104	CERAMIC 0.047U Z 50V (VHR-474G ONLY)
OR	613 014 4355	HF CHOKE 6.8UH(KVHR-474E ONLY)	C1823	403 074 3104	CERAMIC 0.047U Z 50V (VHR-474G ONLY)
L1832	613 014 0890	COIL,INDUCTOR 22UH(KVHR-474E ONLY)	C1824	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
OR	613 014 4416	HF CHOKE 22UH(KVHR-474E ONLY)	C1831	403 028 4201	CERAMIC 56P J 50V (VHR-474E ONLY)
L1833	613 014 0968	COIL,INDUCTOR 82UH(KVHR-474E ONLY)	C1832	403 020 0508	CERAMIC 27P J 50V (VHR-474E ONLY)
OR	613 014 4485	HF CHOKE 82UH(KVHR-474E ONLY)	C1833	403 023 4503	CERAMIC 330P J 50V (VHR-474E ONLY)
L1834	613 014 0951	COIL,INDUCTOR 68UH(KVHR-474E ONLY)	C1834	403 024 7206	CERAMIC 390P J 50V (VHR-474E ONLY)
OR	613 014 4478	HF CHOKE 68UH(KVHR-474E ONLY)	C1835	403 033 4609	CERAMIC 82P J 50V (VHR-474E ONLY)
L1851	613 014 0975	COIL,INDUCTOR 100UH(KVHR-474E ONLY)	C1851	403 069 5601	CERAMIC 0.01U K 50V
OR	613 014 4492	HF CHOKE 003(VHR-474E ONLY)	C1852	403 031 2201	CERAMIC 680P J 50V (VHR-474E ONLY)
OR	613 014 0821	COIL,INDUCTOR 5.6UH(KVHR-474G ONLY)	OR	403 022 8304	CERAMIC 33P J 50V (VHR-474G ONLY)
OR	613 014 4348	HF CHOKE 5.6UH(KVHR-474G ONLY)	C1853	403 022 8304	CERAMIC 33P J 50V
L1852	613 014 0944	COIL,INDUCTOR 56UH	C1854	403 026 2902	CERAMIC 47P J 50V
OR	613 014 4461	HF CHOKE 56UH	C1855	403 030 7009	CERAMIC 68P J 50V (VHR-474E ONLY)
L1853	613 014 0876	COIL,INDUCTOR 15UH	OR	403 028 4201	CERAMIC 56P J 50V (VHR-474G ONLY)
OR	613 014 4393	HF CHOKE 15UH	C1861	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)
L1854	613 014 0876	COIL,INDUCTOR 15UH(KVHR-474G ONLY)	C1862	403 163 7907	ELECT 47U M 6.3V (VHR-474E ONLY)
OR	613 014 4393	HF CHOKE 15UH(KVHR-474G ONLY)	C1865	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)
L1855	613 014 0821	COIL,INDUCTOR 5.6UH(KVHR-474E ONLY)	C1866	403 163 7907	ELECT 47U M 6.3V (VHR-474G ONLY)
OR	613 014 4348	HF CHOKE 5.6UH(KVHR-474E ONLY)	C1867	403 022 8304	CERAMIC 33P J 50V (VHR-474E ONLY)
L1951	613 014 0876	COIL,INDUCTOR 15UH(KVHR-474E ONLY)			
OR	613 014 4393	HF CHOKE 15UH(KVHR-474E ONLY)			
(CAPACITORS)					
C1801	403 154 3307	OS-SOLID 4.7U M 10V			
C1802	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)			
C1803	403 070 9803	CERAMIC 0.015U K 50V			
C1804	403 069 5601	CERAMIC 0.01U K 50V			
C1805	403 193 8509	ELECT 0.33U M 50V			
C1806	403 069 5601	CERAMIC 0.01U K 50V			
C1807	403 069 5601	CERAMIC 0.01U K 50V (VHR-474G ONLY)			
C1808	403 069 5601	CERAMIC 0.01U K 50V			
C1809	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)			
OR	403 033 4609	CERAMIC 82P J 50V (VHR-474G ONLY)			
C1810	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)			
OR	403 024 7206	CERAMIC 390P J 50V (VHR-474G ONLY)			
C1811	403 069 5601	CERAMIC 0.01U K 50V (VHR-474E ONLY)			
OR	403 023 4503	CERAMIC 330P J 50V (VHR-474G ONLY)			

LOCATION	PARTS NO.	DESCRIPTION
C1951	403 162 1807	ELECT 22U M 10V (VHR-474E ONLY)
C1952	403 068 0409	CERAMIC 0.1U Z 25V (VHR-474E ONLY)
(RESISTORS)		
R1801	401 038 7700	MT-GLAZE 5.6K JA 1/10W (VHR-474E ONLY)
OR	401 037 6803	MT-GLAZE 12K JA 1/10W (VHR-474G ONLY)
R1802	401 037 6803	MT-GLAZE 12K JA 1/10W (VHR-474E ONLY)
OR	401 038 7700	MT-GLAZE 5.6K JA 1/10W (VHR-474G ONLY)
R1803	401 038 0800	MT-GLAZE 22K JA 1/10W
R1805	401 038 0800	MT-GLAZE 22K JA 1/10W (VHR-474E ONLY)
OR	401 038 0701	MT-GLAZE 2.2K JA 1/10W (VHR-474G ONLY)
R1806	401 037 5400	MT-GLAZE 1K JA 1/10W (VHR-474E ONLY)
OR	401 038 6307	MT-GLAZE 470 JA 1/10W (VHR-474G ONLY)
R1807	401 038 6307	MT-GLAZE 470 JA 1/10W (VHR-474E ONLY)
OR	401 038 0701	MT-GLAZE 2.2K JA 1/10W (VHR-474G ONLY)
R1808	401 038 0701	MT-GLAZE 2.2K JA 1/10W (VHR-474E ONLY)
OR	401 038 7601	MT-GLAZE 560 JA 1/10W (VHR-474G ONLY)
R1809	401 038 0701	MT-GLAZE 2.2K JA 1/10W (VHR-474E ONLY)
OR	401 038 6307	MT-GLAZE 470 JA 1/10W (VHR-474G ONLY)
R1810	401 037 5400	MT-GLAZE 1K JA 1/10W
R1811	401 037 6704	MT-GLAZE 1.2K JA 1/10W
R1812	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1813	401 038 7700	MT-GLAZE 5.6K JA 1/10W
R1814	401 038 3702	MT-GLAZE 33K JA 1/10W
R1815	401 038 3702	MT-GLAZE 33K JA 1/10W
R1816	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1817	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1818	401 037 5400	MT-GLAZE 1K JA 1/10W (VHR-474G ONLY)
R1819	401 038 0800	MT-GLAZE 22K JA 1/10W (VHR-474G ONLY)
R1831	401 038 6307	MT-GLAZE 470 JA 1/10W (VHR-474E ONLY)
R1832	401 038 7601	MT-GLAZE 560 JA 1/10W (VHR-474E ONLY)
R1850	401 037 9200	MT-GLAZE 1.8K JA 1/10W (VHR-474E ONLY)
OR	401 037 5400	MT-GLAZE 1K JA 1/10W (VHR-474G ONLY)
R1851	401 037 5400	MT-GLAZE 1K JA 1/10W
R1852	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1853	401 038 0701	MT-GLAZE 2.2K JA 1/10W
R1854	401 038 5003	MT-GLAZE 390 JA 1/10W
R1855	401 038 5003	MT-GLAZE 390 JA 1/10W
R1856	401 037 5400	MT-GLAZE 1K JA 1/10W
R1857	401 039 0304	MT-GLAZE 820 JA 1/10W
R1858	401 039 0304	MT-GLAZE 820 JA 1/10W
R1859	401 038 9605	MT-GLAZE 750 JA 1/10W
R1860	401 038 3504	MT-GLAZE 330 JA 1/10W (VHR-474G ONLY)
R1873	401 037 5400	MT-GLAZE 1K JA 1/10W (VHR-474E ONLY)

LOCATION	PARTS NO.	DESCRIPTION
R1951	401 037 9200	MT-GLAZE 1.8K JA 1/10W (VHR-474E ONLY)
R1952	401 037 9200	MT-GLAZE 1.8K JA 1/10W (VHR-474E ONLY)
R1953	401 037 7909	MT-GLAZE 1.5K JA 1/10W (VHR-474E ONLY)
R1954	401 037 5400	MT-GLAZE 1K JA 1/10W (VHR-474E ONLY)
R1955	401 037 9200	MT-GLAZE 1.8K JA 1/10W (VHR-474E ONLY)
R1956	401 038 5300	MT-GLAZE 39K JA 1/10W (VHR-474E ONLY)
R1957	401 037 5707	MT-GLAZE 100K JA 1/10W (VHR-474E ONLY)
(JUMPERS)		
J1805	401 037 5004	MT-GLAZE 0.000 ZA 1/10W (VHR-474G ONLY)
J1842	401 037 5004	MT-GLAZE 0.000 ZA 1/10W (VHR-474G ONLY)
J1856	401 037 5004	MT-GLAZE 0.000 ZA 1/10W (VHR-474E ONLY)

COMPL PWB,TM-1

COMPL.NO 613 153 2465

(REMOTE RECEIVERS)

RR701 613 129 0938 IR RECEIVER PACK UNIT
OR 613 134 9087 IR RECEIVER PACK UNIT

(DISPLAYS)

A7001 645 004 0597 FLUORESCENT TUBE
OR 645 004 0603 FLUORESCENT TUBE

(MISCELLANEOUS)

613 139 2267 HOLDER FL

COMPL PWB,TM-7(OPTION)

COMPL.NO 613 154 4925 (VHR-474E)

(INTEGRATED CIRCUIT)

IC771 409 327 9909 IC MV1821

(CRISTAL DEVICE)

X7701 645 004 6797 OSC.CRYSTAL 6.9375MHZ

(INDUCTORS)

L7701 613 014 0852 COIL,INDUCTOR 10UHK
OR 613 014 4379 HF CHOKE 10UHK

(CAPACITORS)

C7701 403 191 8709 ELECT 1U M 50V
C7702 403 159 1001 CERAMIC 0.22U Z 16V
C7703 403 263 5704 MT-COMPO 0.22U J 50V
C7705 403 020 0409 CERAMIC 27P J 50V
C7706 403 020 0409 CERAMIC 27P J 50V
C7707 403 009 5708 CERAMIC 100P J 50V
C7708 403 068 0409 CERAMIC 0.1U Z 25V

(RESISTOR)

R7702 401 037 5004 MT-GLAZE 0.000 ZA 1/10W

LOCATION	PARTS NO.	DESCRIPTION
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CÖMPL PCB, TM-8

COMPL.NO 613 134 4730 (VHR-474G)

(INTEGRATED CIRCUIT)

IC781 409 148 5104 IC SDA5642

(CAPACITÖRS)

C7802	403 013 3103	CERAMIC	150P J	50V
C7803	403 256 4608	MT-COMPO	0.33U J	50V
C7804	403 057 2407	POLYESTER	0.1U J	50V

(RESISTÖRS)

R7805	401 038 0701	MT-GLAZE	2.2K JA	1/10W
R7806	401 037 5806	MT-GLAZE	1M JA	1/10W
R7807	401 039 0601	MT-GLAZE	820K JA	1/10W
R7808	401 037 5707	MT-GLAZE	100K JA	1/10W
R7809	401 037 5608	MT-GLAZE	10K JA	1/10W
R7810	401 037 7008	MT-GLAZE	1.2M JA	1/10W
R7811	401 037 5202	MT-GLAZE	100 JA	1/10W
R7812	401 038 7700	MT-GLAZE	5.6K JA	1/10W

CÖMPL PCB, MC-1

COMPL.NO 613 120 9060

(DIÖDES)

D8001	407 094 1300	PHOTO COUPLE SPI-315-04-C
OR	407 043 0101	PHOTO DIODE ON2170-R

(RESISTÖRS)

R8001	401 026 0607	CARBON	270 JA	1/6W
OR	401 017 0708	CARBON	270 JA	1/4W
R8002	401 024 6700	CARBON	100 JA	1/6W
OR	401 012 4404	CARBON	100 JA	1/4W

(SWITCH)

S8001 613 022 4545 SPECIAL SWITCH

FLEXIBLE FLAT CABLE

	613 153 8627	FLEXIBLE FLAT CABLES CN303-S811
	613 155 6966	FLEXIBLE FLAT CABLES CN301-S711
	613 154 8800	FLEXIBLE FLAT CABLES CN101-S181
		(VHR-474E ONLY)
OR	613 144 3037	FLEXIBLE FLAT CABLES CN101-S181
		(VHR-474G ONLY)



SANYO Electric Co., Ltd.
Osaka, Japan

VHR-474E

VHR-474G

BLOCK DIAGRAMS, CIRCUIT DIAGRAMS & PRINTED WIRING BOARDS

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TM-8 P.W.B. (VHR-474G ONLY)	34

NOTES:

1. All resistance values in "OHMS" unless otherwise noted. (K=1,000
M=1,000,000)
2. All capacitance values in " μ fd" unless otherwise noted.
p=pico farad
3. All inductance values in "mH" unless otherwise noted. μ =micro
henry

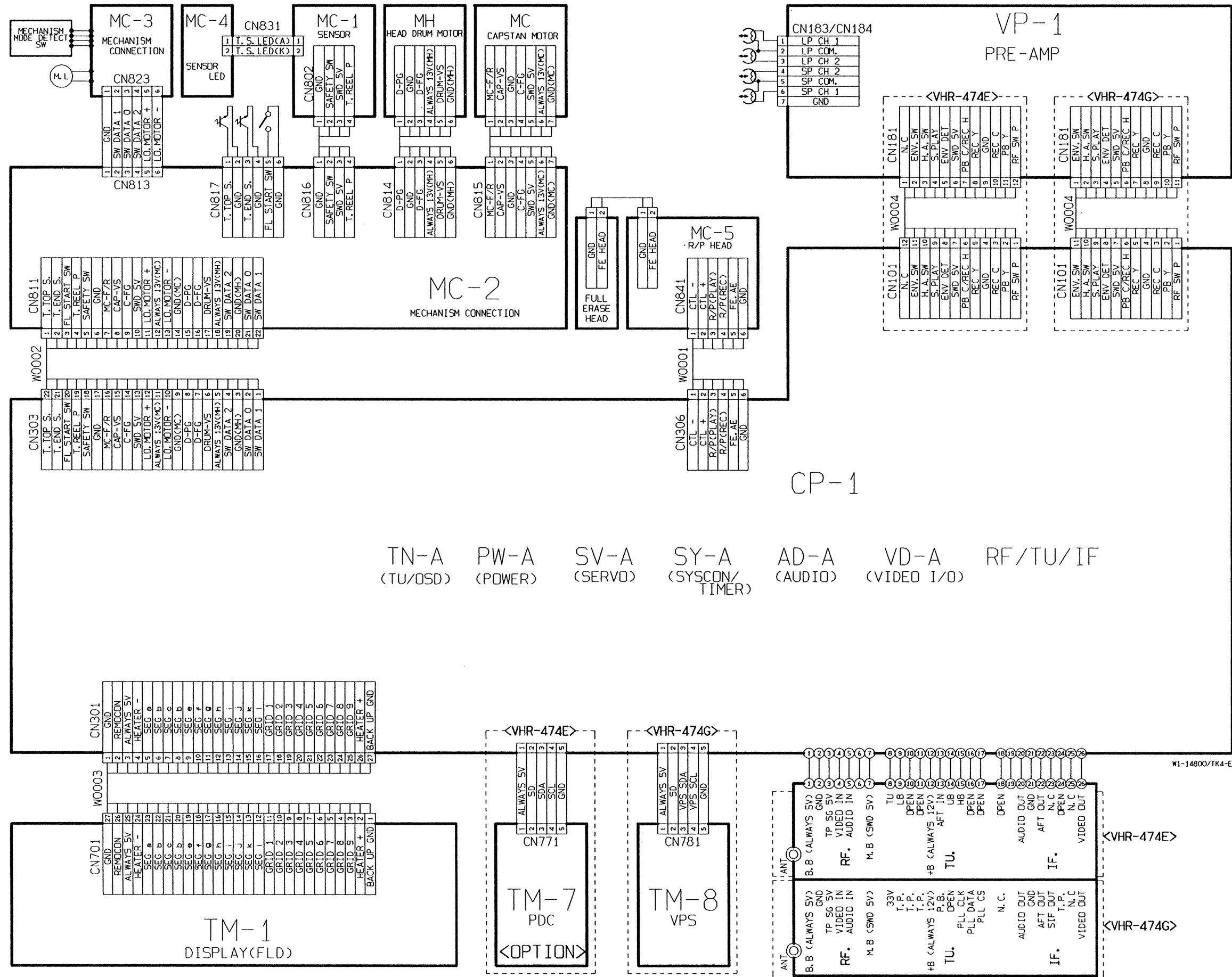
PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A SYMBOL (Δ) IN THIS SCHEMATIC DIAGRAM DESIGNATES COMPONENTS WHOSE VALUE ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A SYMBOL NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

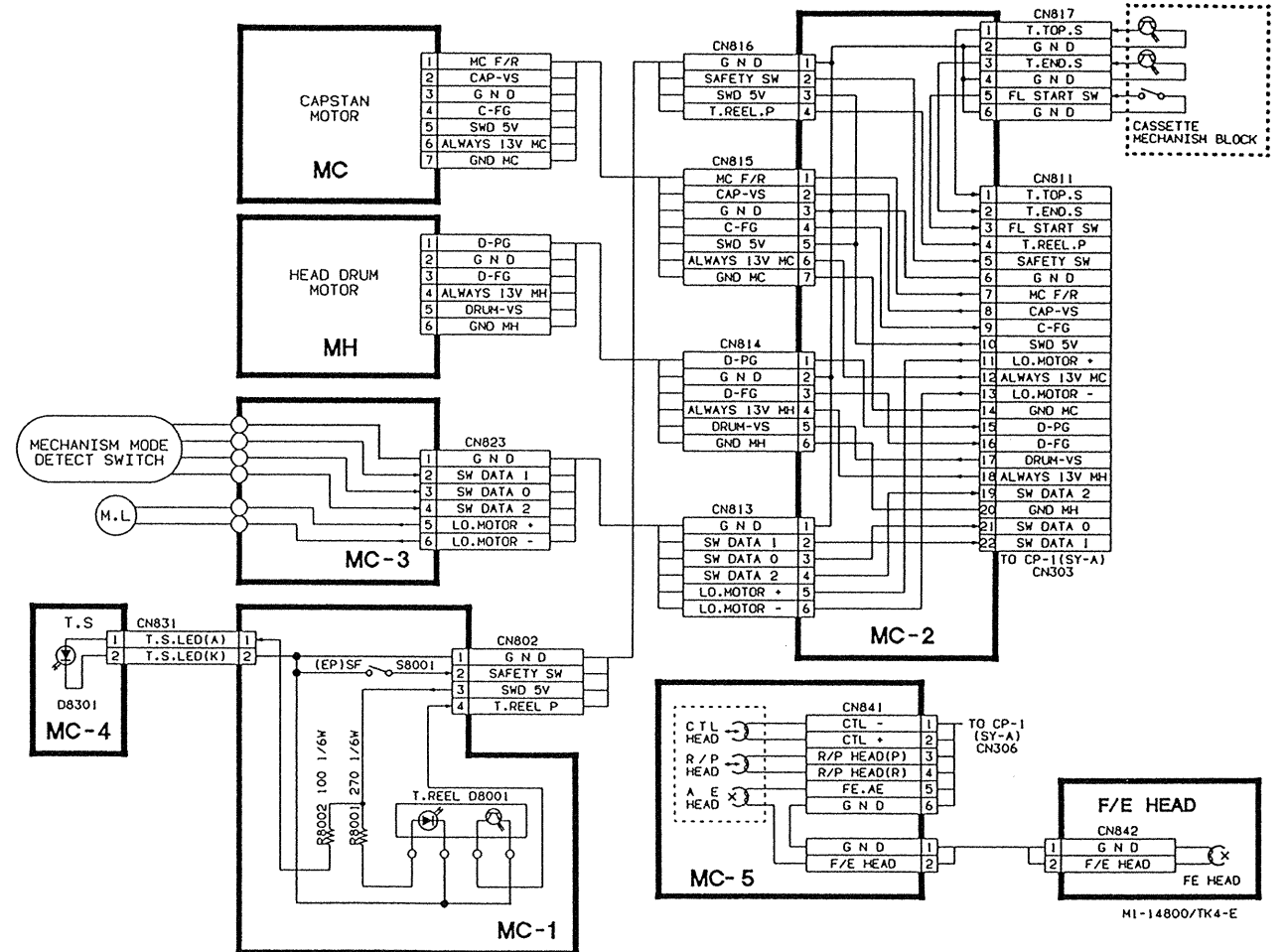
K
J
I
H
G
F
E
D
C
B
A

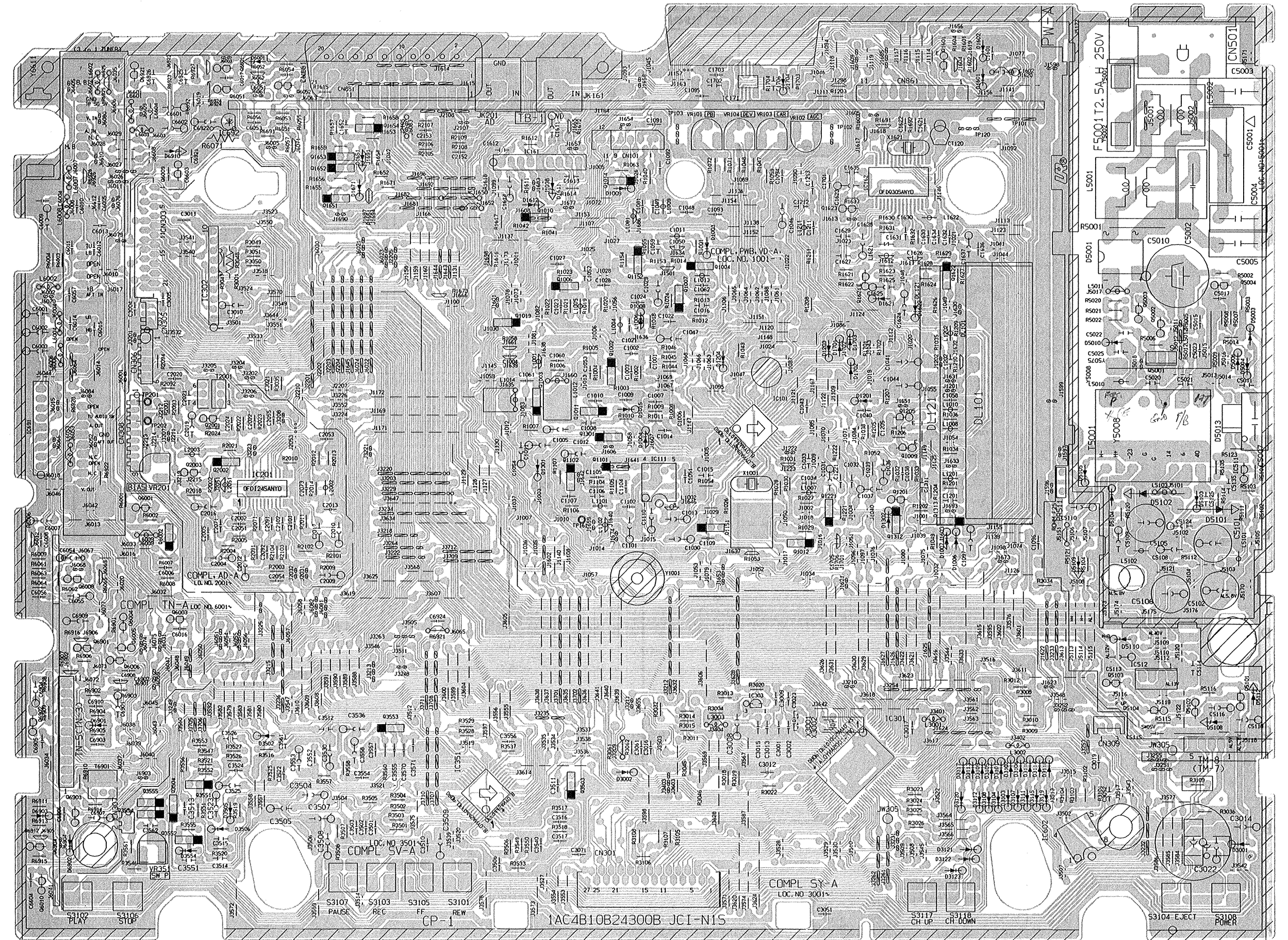
1. OVERALL WIRING,MECHANISM CONNECTION, & BLOCK DIAGRAMS

OVERALL WIRING

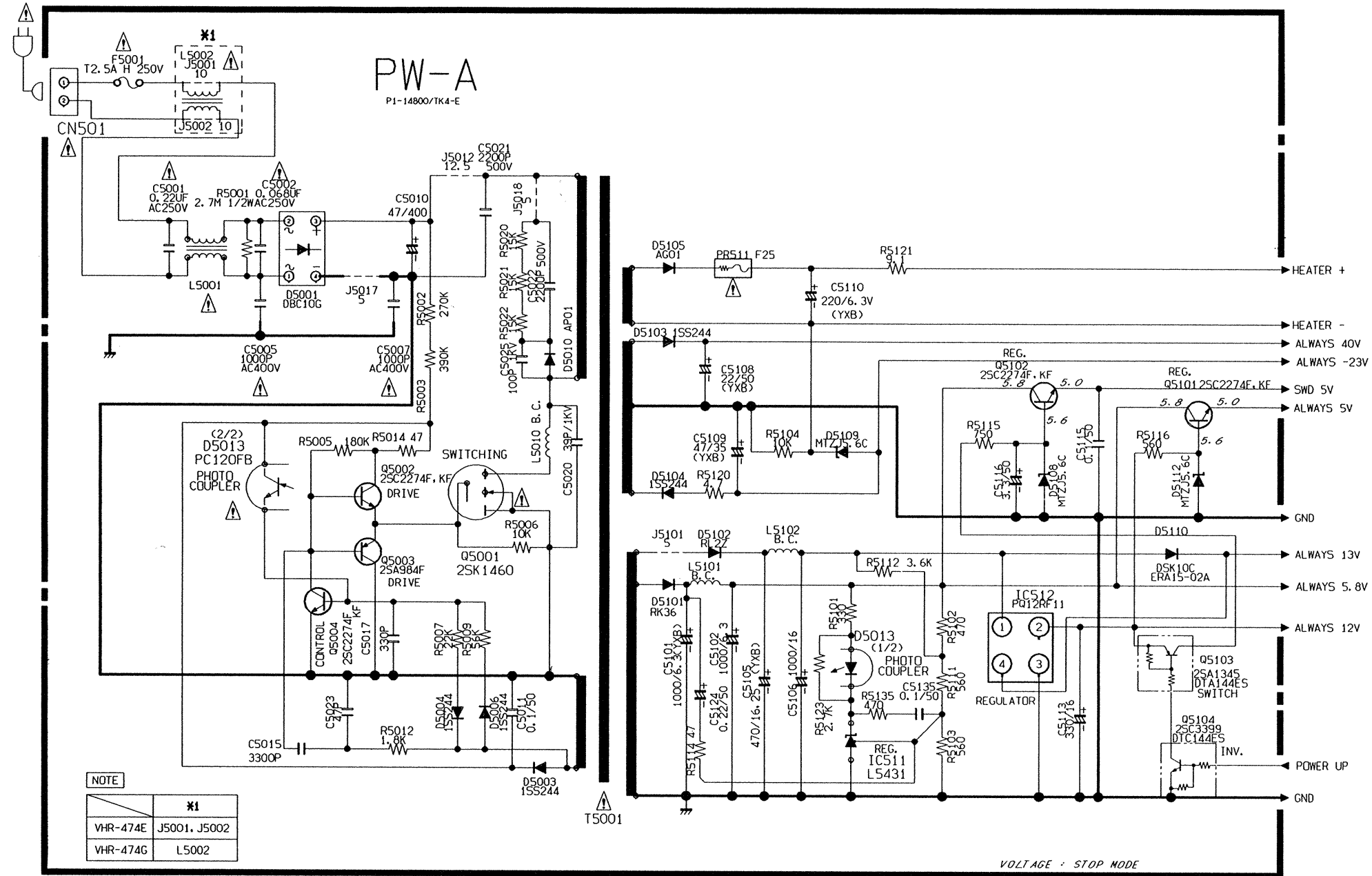


MECHANISM CONNECTION

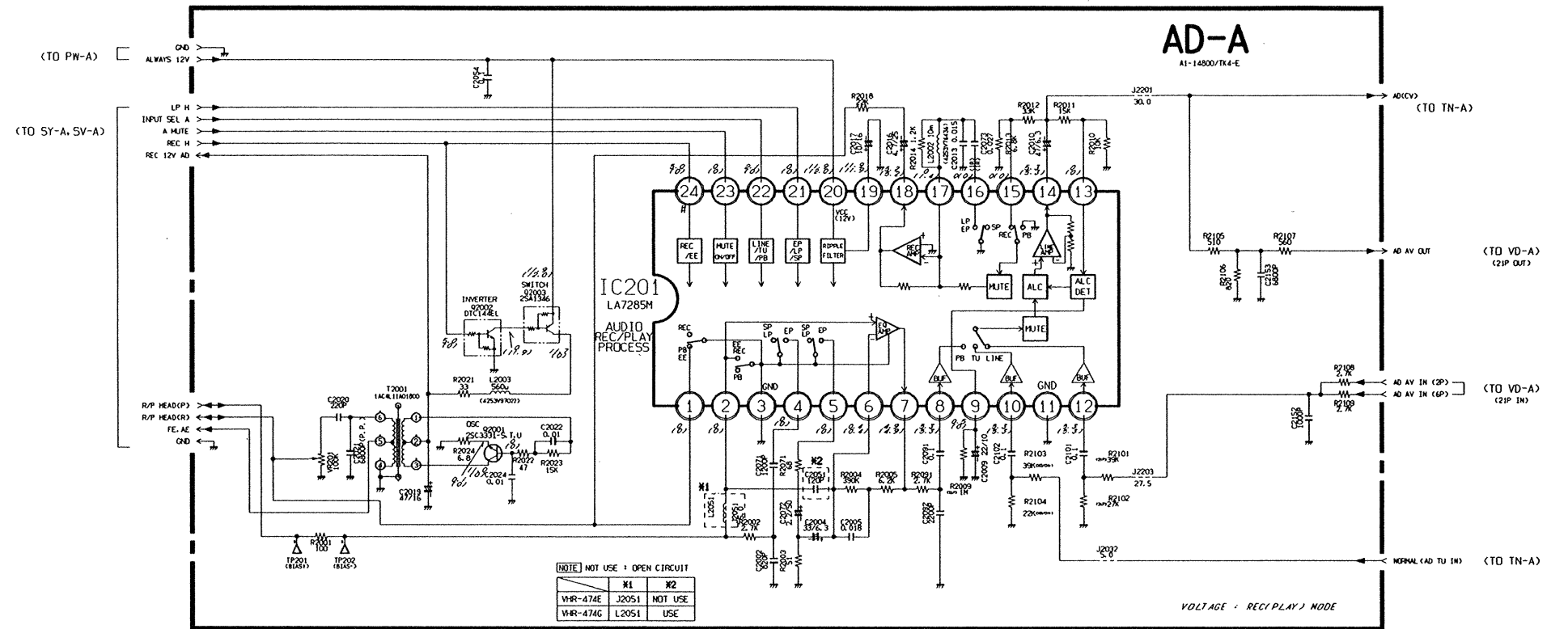




CP-1 BOARD (PW-A) POWER SUPPLY



CP-1 BOARD (AD-A) AUDIO



A vertical scale with labels A, B, C, D, E, F, G, H, I, J, K from bottom to top.



TEST LOCATION	WAVEFORM	MODE/LEVEL	TEST LOCATION	WAVEFORM	MODE/LEVEL
IC101 Pin 33 (VIDEO IN)		REC, EE 1 Vp-p	IC101 Pin 30 (VIDEO OUT)		PB 2.5 Vp-p
IC101 Pin 41		REC, EE 0.6 Vp-p	IC101 Pin 30 (VIDEO OUT)		REC, EE 2 Vp-p
IC101 Pin 42		REC, EE 0.5 Vp-p	IC101 (UPPER) Pin 30 (LOWER) Pin 28		STILL (UPPER) 2 Vp-p (LOWER) 5 Vp-p
IC101 Pin 43		REC, EE 1.2 Vp-p	IC101 Pin 10 (REC CHROMA OUT)		REC, EE 0.4 Vp-p
IC101 Pin 36 (REC FM OUT)		REC, EE 1.0 Vp-p	Q1006 Base (PB CHROMA)		PB 0.3 Vp-p
IC101 Pin 35 (PB FM IN)		PB 0.3 Vp-p	Q1007 Emitter (PB CHROMA)		PB 0.2 Vp-p
IC101 Pin 41		PB 0.5 Vp-p	IC101 Pin 10 (PB CHROMA IN)		PB 0.2 Vp-p
IC101 Pin 42		PB 0.5 Vp-p	IC101 Pin 20		PB 1.0 Vp-p
IC101 Pin 7/4		PB 0.3 Vp-p	IC101 Pin 26		PB 0.6 Vp-p

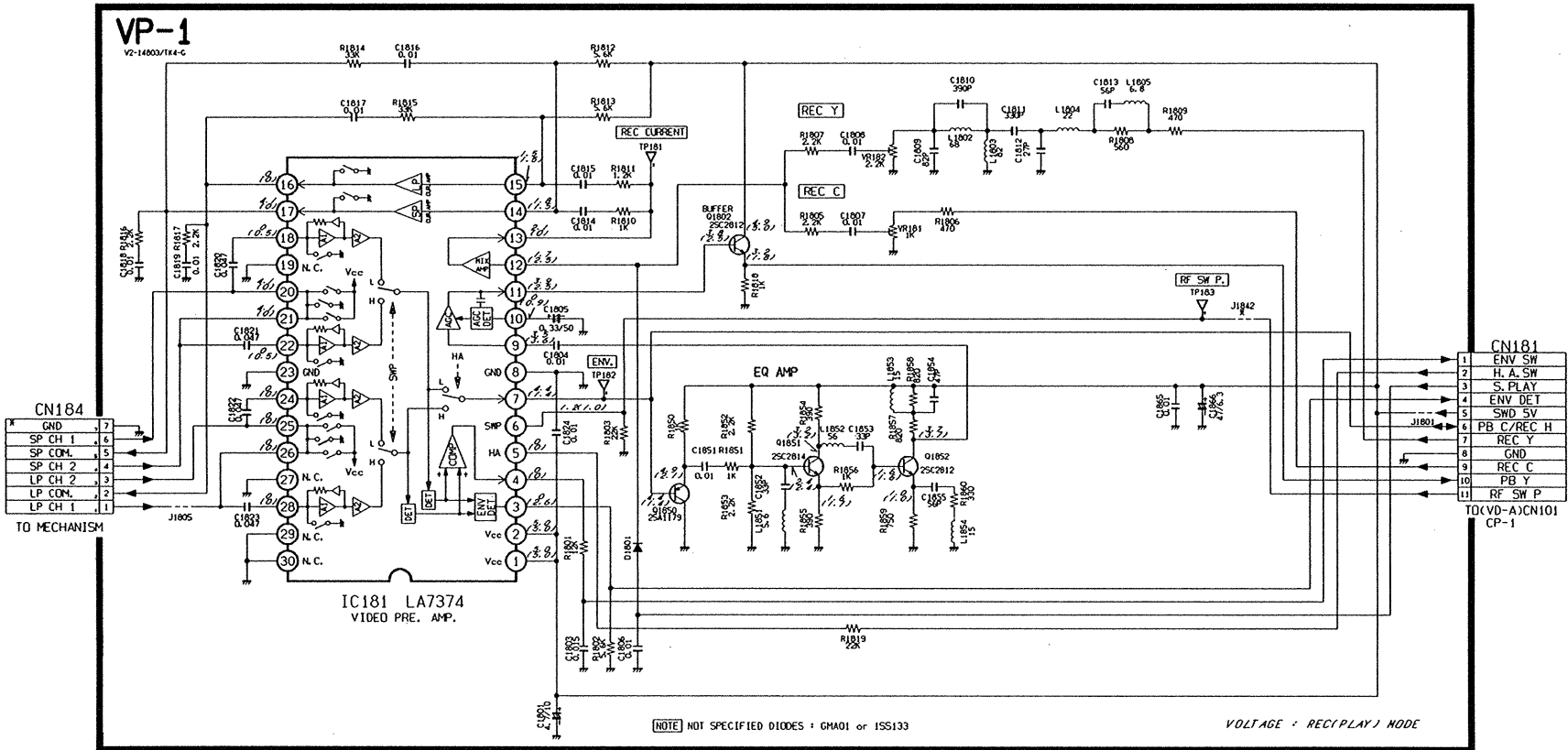
ON SCREEN (IC162) WAVEFORMS

(MODE: REC EE/ON SCREEN)

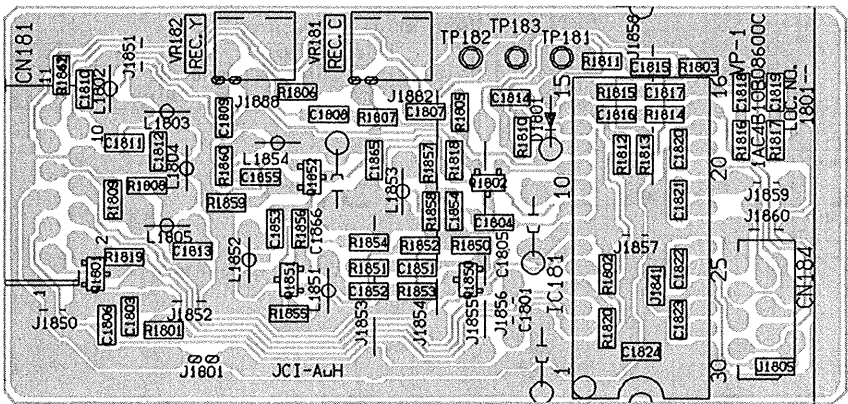
TEST LOCATION	WAVEFORM	LEVEL	TEST LOCATION	WAVEFORM	LEVEL
Pin 5 (17.7MHz X-TAL)		2Vp-p	Pin 19 (CV cr)		2Vp-p
Pin 6 (17.7MHz X-TAL)		3Vp-p			
Pin 14 (HALF TONE)		5Vp-p	Pin 20 (SYNC IN)		2Vp-p
Pin 16 (VIDEO OUT; WITH ON SCREEN)		2Vp-p			
Pin 14 (HALF TONE)		5Vp-p	Pin 23 (PD OUT)		4.5Vp-p
Pin 18 (VIDEO IN)		2Vp-p	Pin 16 (VIDEO OUT)		2Vp-p

WF-UFO-TP4

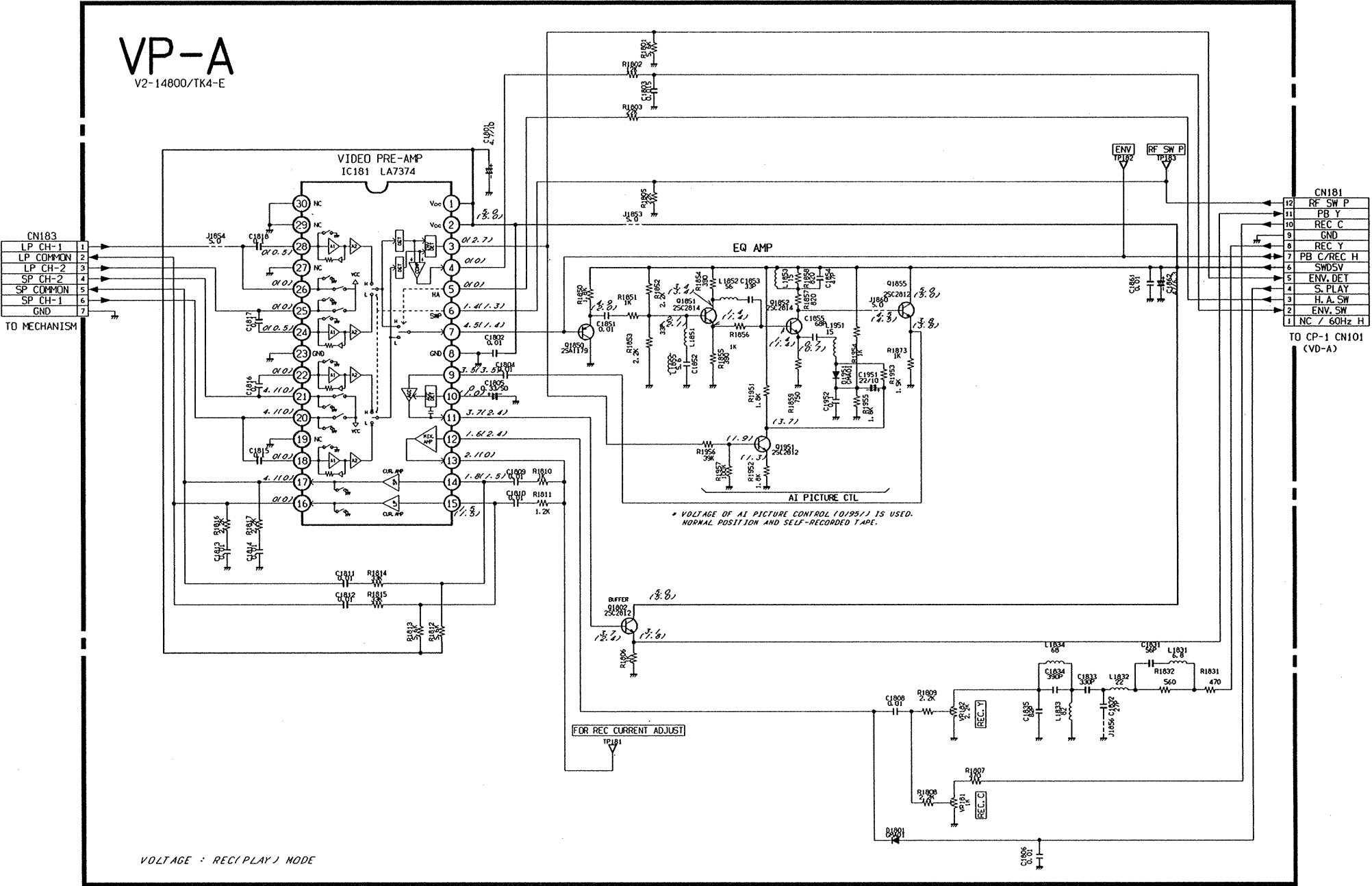
VP-1 BOARD VIDEO PRE-AMP (VHR-474G)



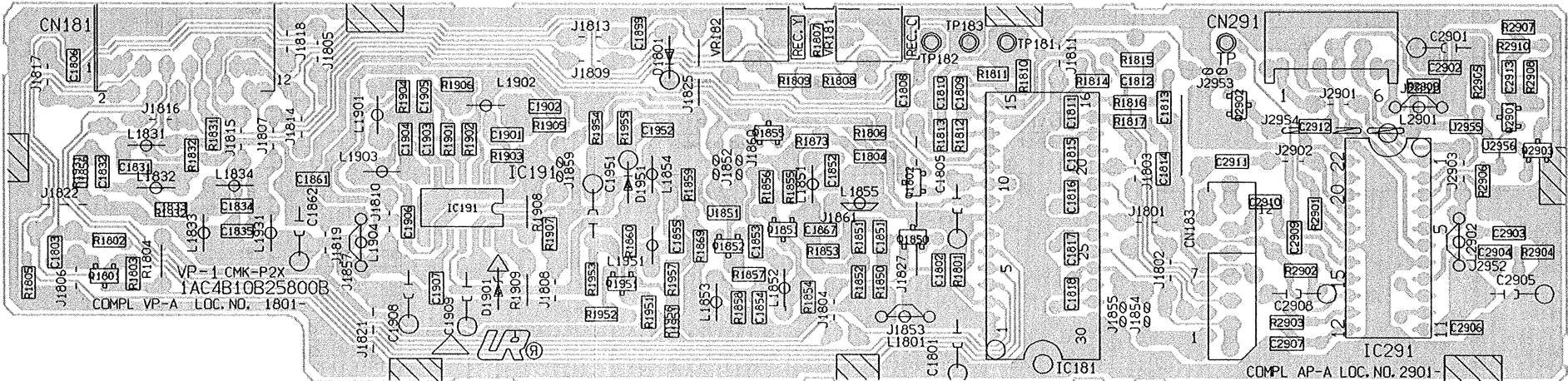
VP-1 P.W.B. (VHR-474G)



VP-1 BOARD (VP-A) VIDEO PRE-AMP (VHR-474E)



VP-1 P.W.B. (VHR-474E)

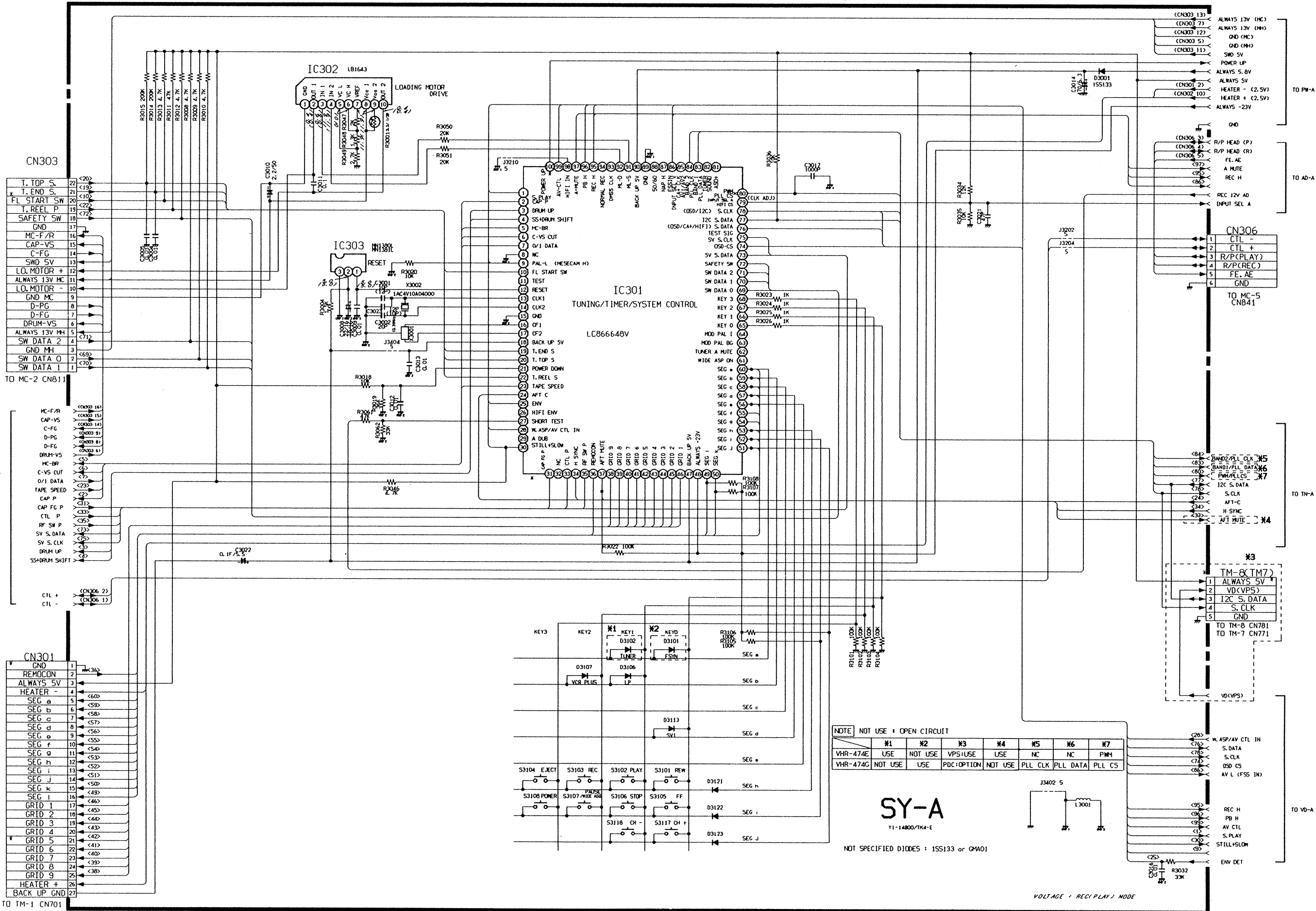


K IC301 SYSTEM CONTROL, TIMER, & TUNING CONTROL MPU PIN FUNCTIONS TABLE

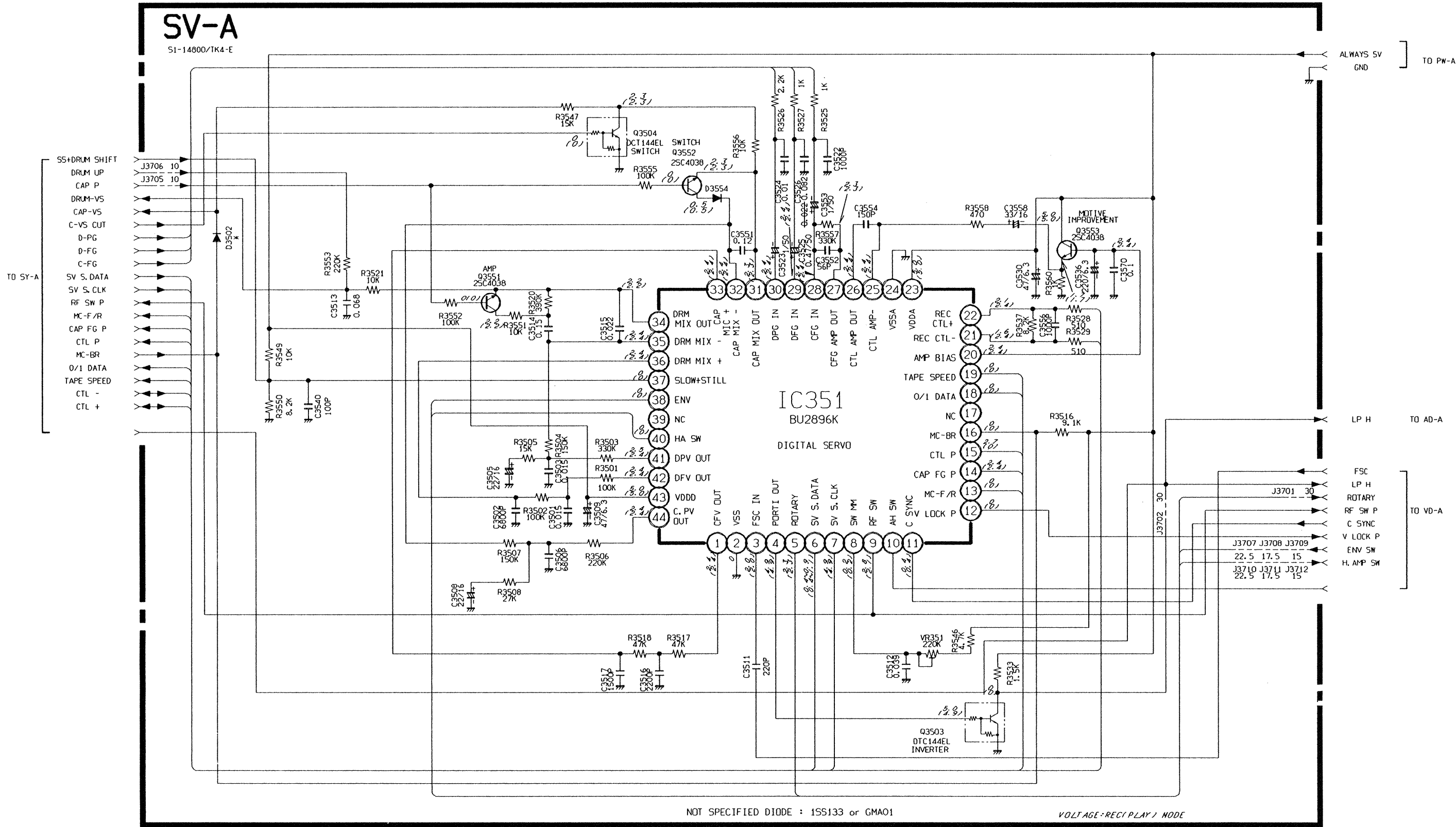
No.	Name	I/O	I/O Signal Function
1	S - PLAY	O	Signal for indicating CUE, REV, STILL and SLOW modes.
2	CAP P.	O	Gain down control for Head Motor Amplifier at SLOW mode.
3	DRUM UP	O	Head drum motor rotation speed up signal.
4	SS + DRUM SHIFT	O	Signal for indicating SLOW/STILL modes and alternation of drum motor control data. (3 value voltage)
5	MC - BR	O	Brake signal for capstan motor.
6	C - VS CUT	O	Cut off for capstan motor control voltage in SLOW / STILL modes.
7	O / 1 DATA	I	CTL pulse duty detection signal input. Used for VISS detection.
8	-	-	-
9	PAL - L (MESECAM H)	I	Color system indication signal input.
10	FL - START SW	I	Switch input indicating start of cassette loading or discharge by cassette mechanism.
11	-	-	-
12	RESET	I	Initial reset terminal for this IC.
13	CLK 1	-	Clock OSC during power failures.
14	CLK 2	-	Frequency is 32.672kHz.
15	VSS	-	Ground terminal
16	CF 1	-	IC clock OSC terminal.
17	CF 2	-	Frequency is 13.92MHz.
18	VDD	-	IC power supply terminal. (5Vdc)
19	T. END S.	I	Sensor signal input for tape end detection.
20	T. TOP S.	I	Sensor signal input for tape beginning detection.
21	POWER DOWN	I	Power failure detection terminal.
22	T. REEL S.	I	Pulse input for detection of take-up reel table rotation.
23	TAPE SPEED	I	Input of result of tape speed discrimination by digital servo IC.
24	AFT - C	I	Tuner AFT S-curve signal input for tuner AFT control.
25	ENV.	I	Video head envelope detection signal input for ATR function.
26	HIFI ENV.	I	Hi-Fi audio head envelope detection signal input for ATR function. (Hi-Fi model only)
27	SHORT TEST	I	REC mode indication signal input (REC 5V).
28	W. ASP/AV CTL IN	I	AV source selection signal input from AV terminal.
29	A DUB	O	Signal for indicating audio dubbing mode.
30	STILL + SLOW	O	STILL or SLOW modes indication signal output.
31	C - FG P.	I	FG signal input of capstan motor.
32	-	-	-
33	CTL P.	I	CTL head recording / playback pulse signal input.
34	H SYNC	I	Sync. signal input for existing channel discrimination and TV system discrimination.
35	RF SW P.	I	RF switching pulse input, created by head drum PG.
36	REMOCON	I	Remote control signal input.
37	AFT MUTE	O	"H" output during TU AFT mute. (V-syn model only)
38	G9	O	Display grid outputs (FLD).
39	G8	O	
40	G7	O	
41	G6	O	
42	G5	O	
43	G4	O	
44	G3	O	
45	G2	O	IC power supply input. (5Vdc)
46	G1	O	
47	VDD	-	
48	V LOAD	O	
49	SEG I	O	
50	SEG K	O	
51	SEG J	O	
52	SEG I	O	Display segment outputs (FLD). (Includes key-scan output)
53	SEG h	O	
54	SEG g	O	

No.	Name	I/O	I/O Signal Function
55	SEG f	O	Display segment outputs (FLD). (Includes key-scan output)
56	SEG e	O	
57	SEG d	O	
58	SEG c	O	
59	SEG b	O	
60	SEG a	O	Signal for wide aspect TV-system indication.
61	WIDE ASP ON	O	
62	TUNER A MUTE	O	
63	RF PAL BG	O	
64	RF PAL I	O	
65	KEY IN 0	I	Operation key data inputs.
66	KEY IN 1	I	
67	KEY IN 2	I	
68	KEY IN 3	I	
69	SW DATA 0	I	3-bit data indicating operation position of mechanism.
70	SW DATA 1	I	
71	SW DATA 2	I	
72	SAFETY SW	I	Terminal for accidental erasure prevention switch. No operation to record mode while "HIGH" is input.
73	SV S. DATA	O	Output 8-bit X 4 serial data giving operation mode and tracking data, etc., to digital servo IC.
74	OSD CS	O	Chip enable (access) signal output to OSD IC.
75	SV S. CLK	O	The clock pulse for digital servo IC.
76	S. DATA	I/O	Terminal for communication of respective data with OSD IC, CH+ control IC, and Hi-Fi audio IC.
77	I2C S. DATA	I/O	Data exchange with tuning memory IC and VPS IC.
78	S. CLK (OSD/I2C)	O	The clock pulse for OSD IC and tuning memory IC.
79	INPUT SEL A	O	Signal for selecting audio input source.
80	HIFI CS	O	Chip enable (access) signal to Hi-Fi audio IC.
81	PLL CS	O	Chip enable signal output to tuner PLL tuning system IC. (F-syn model)
82	TU PWM	O	Tuning voltage output (PWM signal). (V-syn model)
83	BAND 1	O	TV system indication signal output (PAL I or BG).
84	PLL DATA	O	Data exchange with tuner PLL IC (for F-syn model).
85	BAND 2	O	BAND 1 and 2; (L,L)=VHF-LOW (L,H)=VHF-HIGH (H,L)=UHF (H,H)=SKIP. (for V-syn model)
86	PLL CLK	O	The clock for PLL IC of tuner unit (for F-syn model).
87	CH+ CLK	O	The clock for CH+ input/output source selection IC.
88	AV1 / AV2	O	Signal for selecting AV-input (video/audio) source.
89	INPUT SEL V	O	Signal for selecting video input source.
90	FSS IN	I	CH+ mode control signal input (CH+ model).
91	NAP H	O	"H" output during NTSC (NAP) playback mode.
92	50 / 60	O	"LOW" output during NTSC (NAP) mode. (60 field mode)
93	VSS	-	IC ground terminal.
94	VDD	-	IC power supply input. (5Vdc)
95	ML - S	O	Loading motor rotation speed (low / medium / high) indication signal.
96	ML - D	O	Loading motor rotation direction (FWD / REV) indication signal.
97	NORMAL AD REC	O	Signal for indicating normal audio recording.
98	REC H	O	Signal for indicating recording mode.
99	PB H	O	Signal for indicating playback mode.
100	A MUTE	O	"H" output for disable audio output signal.
101	HIFI IN	I	Hi-Fi mode indication signal input from audio IC.
102	AV CTL	O	AV terminal (pin8 of 21pins AV socket) control signal output.
103	ANT / VTR	O	Selection the RF source of ANTENNA or VTR.
104	POWER UP	O	"HIGH" output except when power is off. Indicating that power is ON.

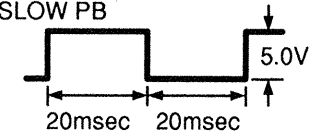
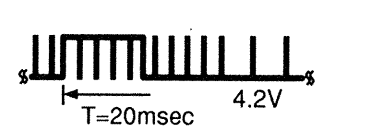
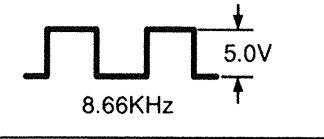
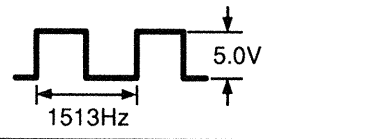
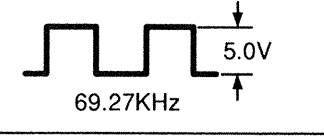
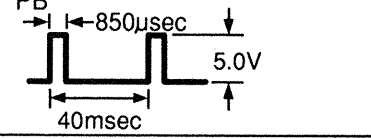
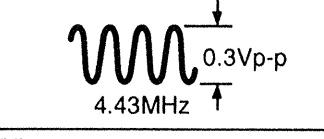
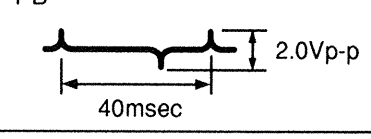
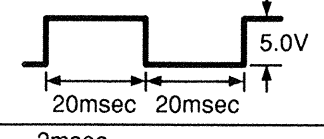
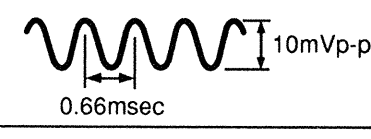
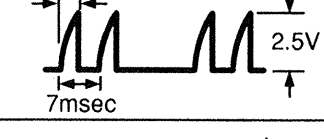
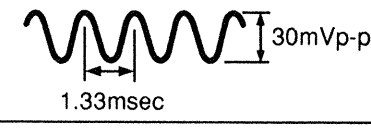
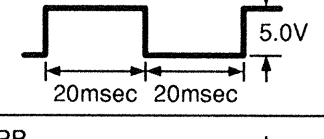
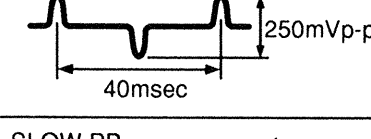
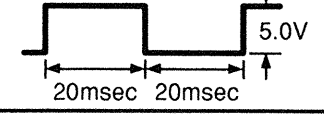
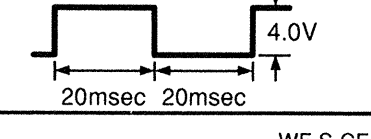
CP-1 BOARD (SY-A) SYSTEM CONTROL



CP-1 BOARD (SV-A) SERVO

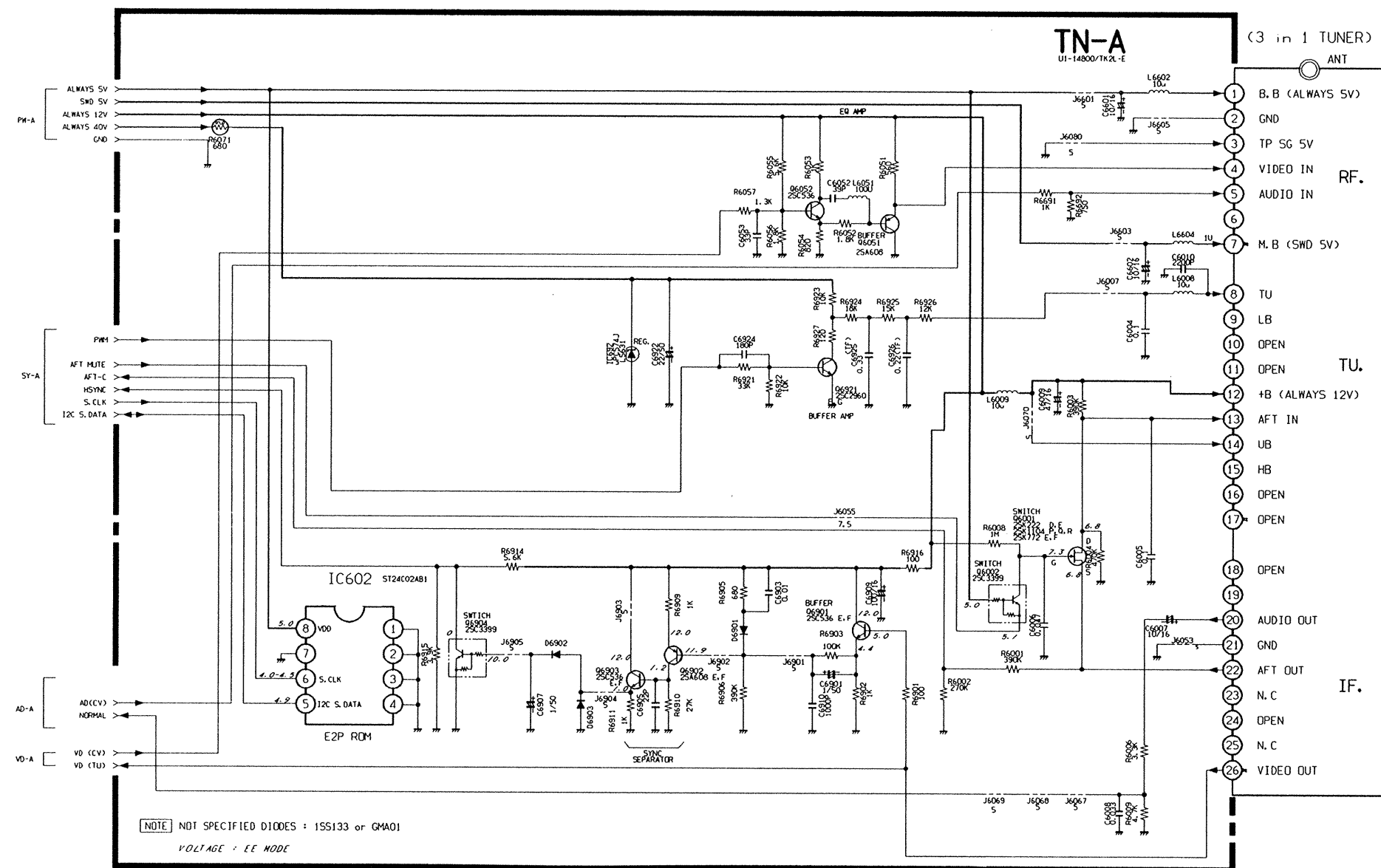


SERVO CIRCUIT WAVEFORMS (IC351:BU2896 Series)

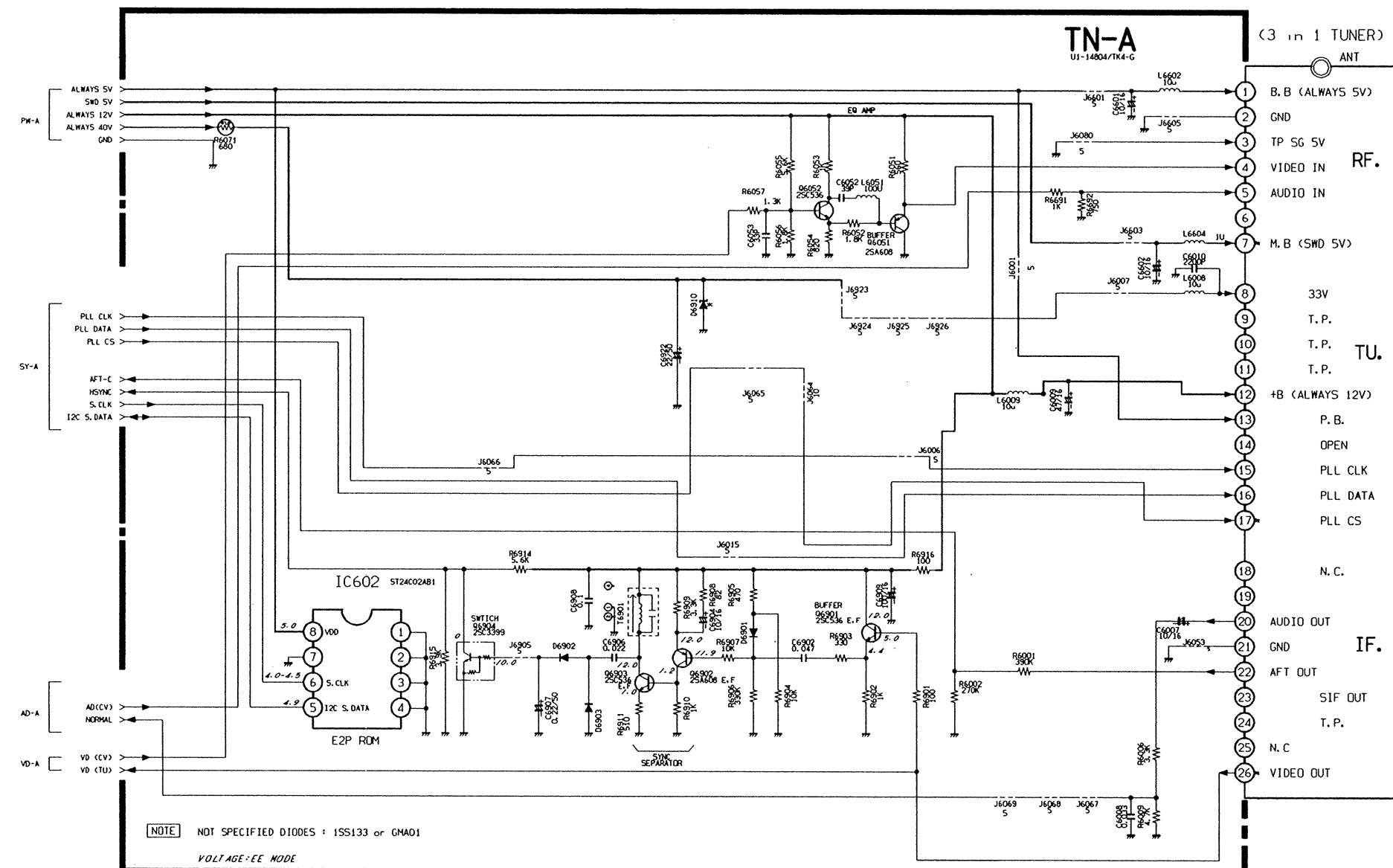
TEST LOCATION	WAVEFORM & MODE/LEVEL	TEST LOCATION	WAVEFORM & MODE/LEVEL
Pin 40 (H.A.SWITCHING)		Pin 11 (COMPOSITE SYNC INPUT)	
Pin 42 (PWM)		Pin 14 (C-FG PULSE)	
Pin 41,44,1 (PWM)		Pin 15 (CTL PULSE)	
Pin 3 (FSC INPUT)		Pin 26 (CTL AMP OUT)	
Pin 5 (ROTARY)		Pin 28 (C-FG INPUT)	
Pin 8 (D-PG MM)		Pin 29 (D-FG INPUT)	
Pin 9 (RF SW PULSE)		Pin 30 (D-PG INPUT)	
Pin 10 (AF SW PULSE)		Pin 38 (ENV.SW INPUT)	

WF-S-CE6

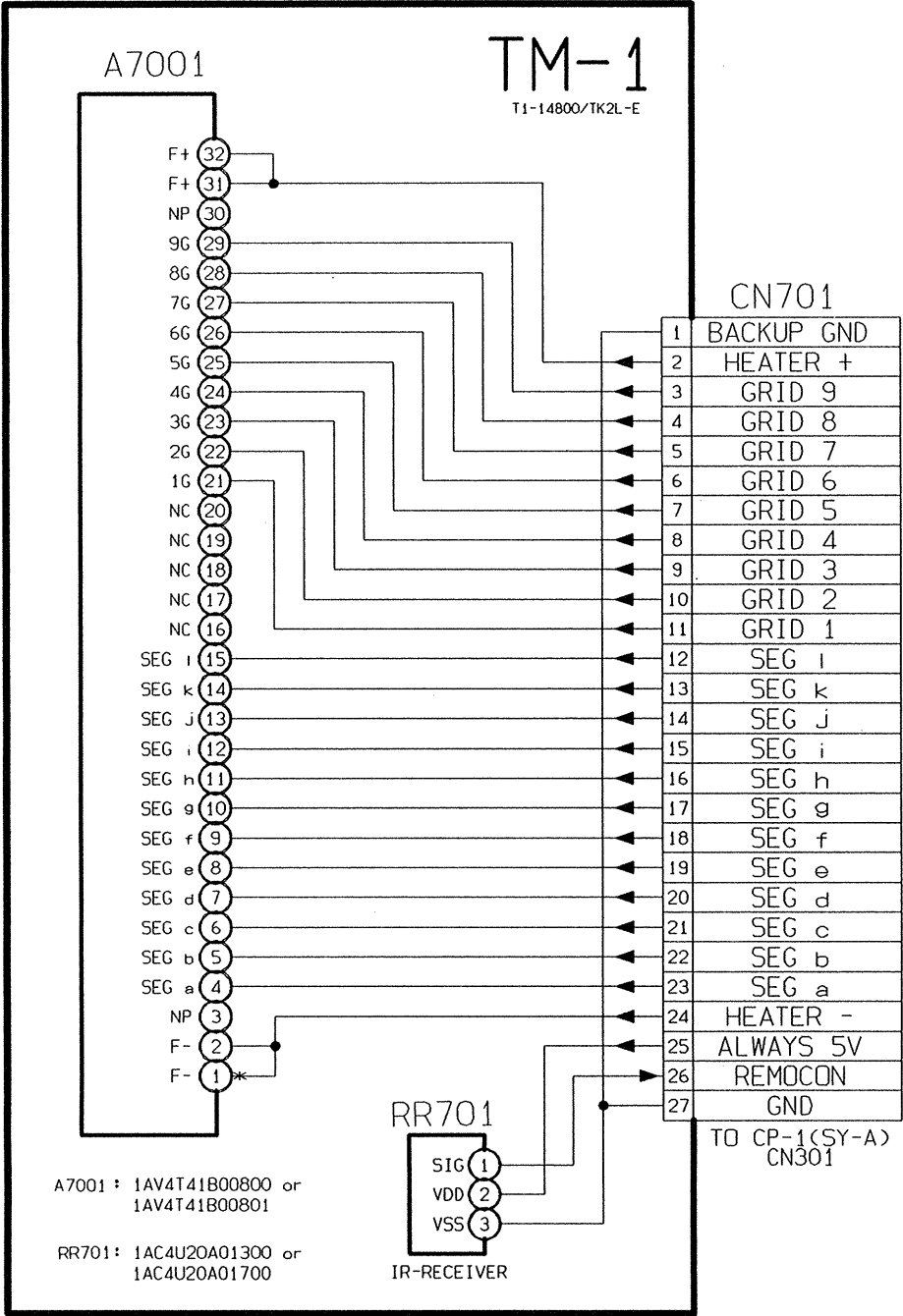
CP-1 BOARD (TN-A) TUNER IF CONNECTION (VHR-474E)



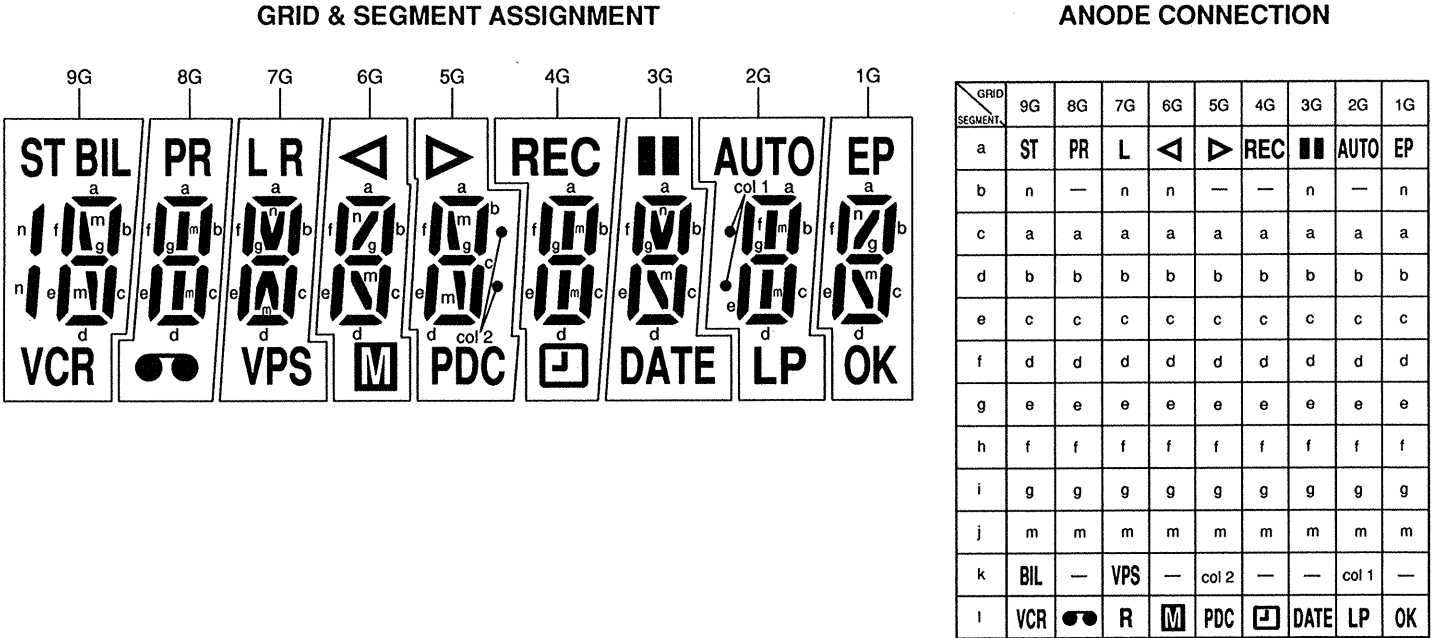
CP-1 BOARD (TN-A) TUNER IF CONNECTION (VHR-474G)



TM-1 BOARD DISPLAY (FLD)

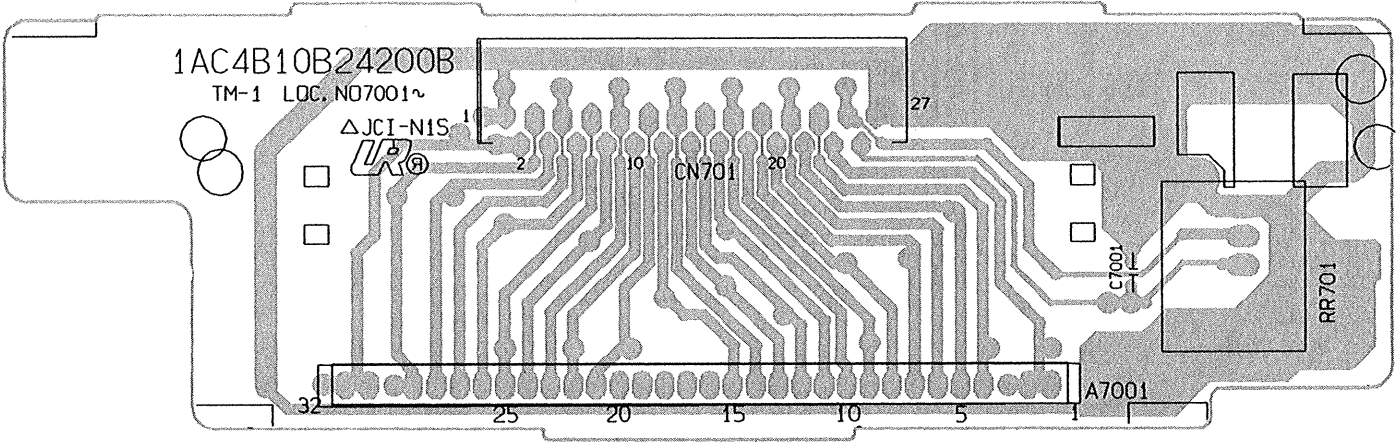


A7001 DISPLAY (FLD) GRID/ANODE ASSIGNMENT DRAWING & TABLE

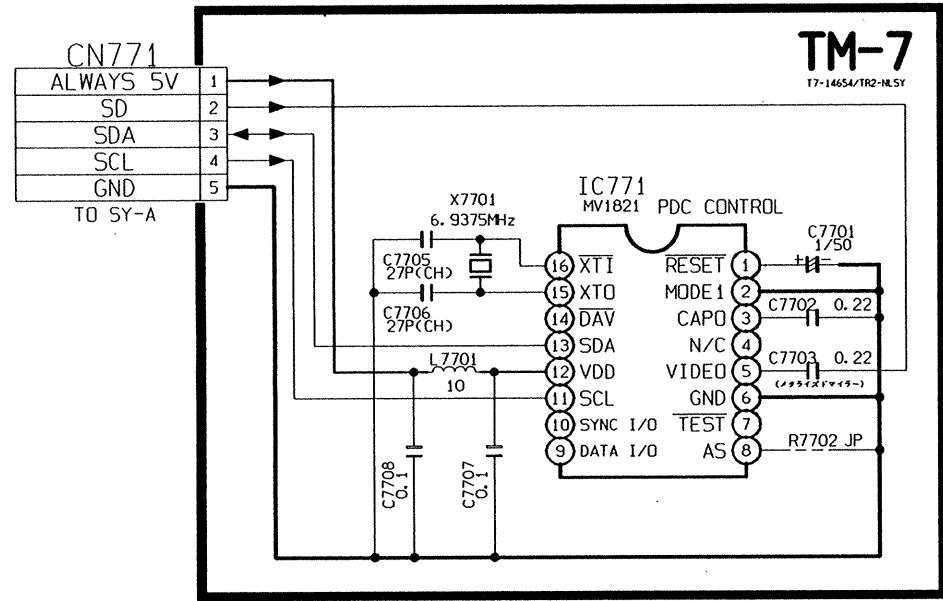


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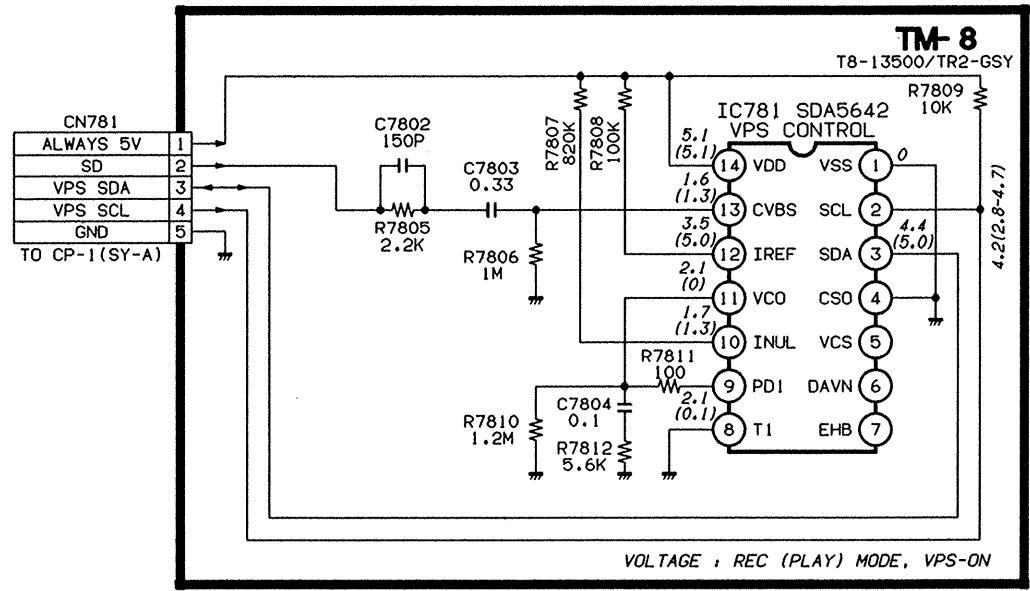
TM-1 P.W.B.



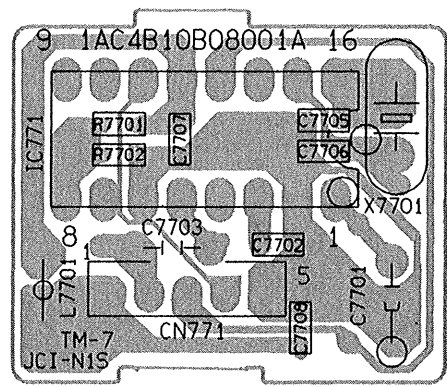
TM-7 BOARD PDC (OPTION BOARD FOR VHR-474E ONLY)



TM-8 BOARD VPS (VHR-474G ONLY)



TM-7 P.W.B. (OPTION BOARD FOR VHR-474E ONLY)



TM-8 P.W.B. (VHR-474G ONLY)

